DOCUMENT RESUME

ED 312 397 CE 053 467

AUTHOR Richards, Beverly, Ed.
TITLE Health Occupations Education National Research Conference (3rd, University Park, Pennsylvania, October 5-6, 1989). Proceedings.
INSTITUTION Pennsylvania State Univ., University Park.
PUB DATE Oct 89
NOTE 219p.; Co-sponsored by Auburn University, Florida International University, Indiana University, and Pennsylvania State University in cooperation with the U.S. Department of Education, and the American Vocational Association.
PUB TYPE Collected Works - Conference Proceedings (021) -- Reports - Research/Technical (143) -- Reports - Descriptive (141)

EDRS PRICE MF01/PC09 Plus Postage.
DESCRIPTORS *Allied Health Occupations Education; Articulation (Education); Computer Software; Educational Change; *Health Occupations; Health Personnel; Health Services; High Schools; Human Services; Leadership Training; Staff Development; Student Organizations; Teacher Certification; Teacher Qualifications; Two Year Colleges; *Vocational Education
IDENTIFIERS *Health Occupations Students of America

ABSTRACT

This document contains the proceedings of a research conference on health occupations of education and includes an agenda of the conference, a list of co-sponsors, and 10 papers: "The Need for Research in Education of Human Service Workers" (C. Junge); "Status of Health Occupations Teacher Certification" (C. Chappelka); "Commitment to Change: A Study of Health Occupations Teachers and Staff Development Personnel in Health Care Settings" (D. Witmer); "An Open System Planning Model" (V. Klaus); "Factors Related to the Completion of Community College Allied Health Programs" (C. Rzonca); "Self Perception of Needs: A Study of Secondary Health Occupations Education Teachers" (K. Gable); "Current and Future Use of the Multiskilled Health Worker" (J. Brandt); "Leadership Training Topics: Perceptions of High School Leaders of Health Occupations Students of America" (N. Walters, J. Wilmoth, and J. Robinson); "Issues in Developing Computer Software for Health Occupations Students of America" (J. Sandiford); and "Articulation Program" (M. Malinchok). (NLL)

**********
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
**********

# THIRD NATIONAL
# HEALTH OCCUPATIONS EDUCATION
# RESEARCH CONFERENCE

# PROCEEDINGS

Edited

by

Beverly Richards, D.Ed.

The Pennsylvania State University

Division of Counseling and Educational Psychology

and Career Studies

105 Rackley Building

University Park, Pennsylvania 16802

HEALTH OCCUPATIONS EDUCATION

THIRD NATIONAL RESEARCH CONFERENCE

Program Schedule

Thursday, October 5, 1989

7:30 - 8:30 Registration/Continental Breakfast, Room 402-403

Moderator: Dr. Beverly Richards
Associate Professor
Health Occupations Education
The Pennsylvania State University

8:30 - 9:00 Welcome
Dr. Wayne L. Detwiler
Assistant Director, Center for Professional Personnel Development, College of Education, The Pennsylvania State University.

Greetings:
Nancy Raynor, Vice-President, Health Occupations Education, American Vocational Association.

9:00 - 10:00 Title: The Need for Research in Education of Human Service Workers.

Presenter: Dr. Catherine B. Junge
Education Program Specialist
Health Occupations
OVAE/DVTE/PAB
Washington, D.C.
Reactor: Nancy Raynor

10:00 - 10:30 Break

10:30 - 11:30 Status of Health Occupations Teacher Certification

Presenter: Ms. Cynthia Chappelka
Teacher Educator
Health Occupations Education
Virginia Polytechnic Institute and State University
Reactor: Helen Swaincott

11:30 - 12:30 Luncheon

Thursday, October 5 (continued)

Moderator: Dr. Janice Sandiford
Associate Professor
Health Occupations Education
Florida International University

12:30 - 1:30 Commitment to Change: A Study of Health Occupations Teachers and Staff Development Personnel in Health Care Settings

Presenter: Dr. Dorothy Witmer
Teacher Educator
Health Occupations Education
University of Nebraska
Reactor: Janice Evans

1:30 - 2:30 An Open System Planning Model

Presenter: Vivian Klaus
Assistant Dean
Health Sciences
Kirkwood Community College
Reactor: Cynthia Chappelka

2:30 - 2:45 Break

2:45 - 3:45 Factors Related to the Completion of Community College Allied Health Programs.

Presenter: Dr. Chet Rzonca
Chair,
Social Foundations and Postsecondary Education
University of Iowa
Reactor: Catherine Junge

3:45 - 4:45 Self Perception of Needs: A Study of Secondary Health Occupations Education Teachers

Presenter: Dr. Karen Gable
Coordinator
Health Occupations Education
Indiana University
Reactor: Dorothy Witmer

4:45 - 5:00 Wrap-up and Announcements

5:00 - 7:00 Wine and cheese

Friday, October 6, 1989

8:00 - 9:00 Continental Breakfast
Moderator: Dr. Karen Gable
Coordinator
Health Occupations Education
Indiana University

9:00 - 10:00 Current and Future use of the Multiskilled Health Worker

Presenter: Dr. Joyce Brandt
Program Specialist, Adjunct Lecturer
Health Occupations Education
University of Iowa
Reactor: Chet Rzonca

10:00 - 10:15 Break

10:15 - 11:15 Leadership Training Topics: Perceptions of High School Leaders of Health Occupations Students of America

Presenters: Dr. Norma Walters, Associate Professor, Health Occupations, Auburn University
Dr. Jacquelyn Robinson, Assistant Professor, Home Economics, Auburn University
Reactor: Rosemarie Dunkleberger

11:30 - 12:30 Luncheon
Moderator: Dr. Norma Walters
Associate Professor
Health Occupations Education
Auburn University

12:30 - 1:30 Issues in Developing Computer Software for Health Occupations Students

Presenter: Dr. Janice Sandiford
Associate Professor, Assistant Dean
Health Occupations Education
Florida International University
Reactor: Joyce Brandt

1:30 - 2:30 Articulation Program
Presenter: Martha Malinchok
Coordinator
Practical Nursing Program
Schuylkill County AVTS
Frackville, Pennsylvania
Reactor: Vivian Klaus

2:30 - 2:45 Break

2:45 - 3:30 Evaluation/Wrap-up/Future conference plans

CO-SPONSORS

Norma J. Walters
Associate Professor, and
Coordinator of Health Occupations, and
Graduate Program Office
Vocational and Adult Education
Auburn University
Auburn, Alabama 36849

Janice Sandiford
Associate Professor
Health Occupations Education
Florida International University
Miami, Florida 33199

Karen Gable
Coordinator
Health Occupations Education
Indiana University
Indianapolis, Indiana 46202

Beverly Richards
Associate Professor
The Pennsylvania State University
Division of Counseling and Educational Psychology
and Career Studies
University Park, Pennsylvania 16802

Catherine Junge
Program Specialist
Health Occupations Education
U.S. Department of Education, and
Health Occupations Education Division
of the American Vocational Association
Washington, D.C. 20202-5613

HEALTH OCCUPATIONS OF EDUCATION

THIRD NATIONAL RESEARCH CONFERENCE

October 5-6, 1989

TABLE OF CONTENTS


| Title | Page No. |
|---|---|
| Agenda. . . . . | ii |
| Co-Sponsors . . . . . | v |
| The Need for Research in Education of Human Service Workers. . . . . Catherine B. Junge | 1 |
| Status of Health Occupations Teacher Certification. . . . . Cynthia Chappelka | 28 |
| Commitment to Change: A Study of Health Occupations Teachers and Staff Development Personnel in Health Care Settings . . . . . Dorothy Witmer | 53 |
| An Open System Planning Model . . . . . Vivian Klaus | 75 |
| Factors Related to the Completion of Community College Allied Health Programs . . . . . Chet Rzonca | 87 |
| Self Perception of Needs: A Study of Secondary Health Occupations Education Teachers . . . . . Karen Gable | 107 |
| Current and Future Use of the Multiskilled Health Worker. . Joyce Brandt | 119 |
| Leadership Training Topics: Perceptions of High School Leaders of Health Occupations Students of America. . . . Norma Walters, James Wilmoth, and Jacquelyn Robinson | 141 |
| Issues In Developing Computer Software for Health Occupations Students of America. . . . . Janice Sandiford | 163 |
| Articulation Program. . . . . Martha Malinchok | 183 |

# THE NEED FOR RESEARCH IN EDUCATION OF HUMAN SERVICE WORKERS

Catherine B. Junge

Education Program Specialist

Health & Social Service Occupations

U.S. Department of Education

Washington, D.C.

# THE NEED FOR RESEARCH IN EDUCATION OF HUMAN SERVICE WORKERS

Catherine B. Junge

## DESCRIPTION OF HUMAN SERVICE WORKERS

According to the Occupational Outlook Handbook (1988-89), the category of human service worker falls under the general heading of social service occupations. The Handbook description of social workers is summarized below.

> Social workers help individuals, families, and groups cope with problems of every description. Mostly, however, they aid people who are overwhelmed by circumstances: the homeless, the unemployed, the seriously ill, the bereaved. Among the major helping professions, social work is distinguished by a tradition of concern for the poor, the disadvantaged, and those too young or too old to fend for themselves.
>
> Major areas of social work practice include child welfare and family services, psychiatric and mental health services, public assistance, medical social work, community organization, planning and policy development, and social welfare administration.
>
> A bachelor's degree is the minimum requirement for most professional positions in this field. Besides the bachelor's in social work (BSW), undergraduate majors in psychology, sociology, and related fields satisfy hiring requirements in many social service agencies. A master's degree in social work is generally

---

Catherine B. Junge, Education Program Specialist, Health and Social Service Occupations, U.S. Department of Education, Washington, DC.

required for positions in the mental health field and is almost always necessary for supervisory, administrative, or research positions. A doctorate in social work usually is required for teaching and is desirable for some research and administrative jobs.

Social workers should be emotionally mature, objective, and sensitive and should possess a basic concern for people and their problems. They must be able to handle responsibility, work independently, and maintain good working relationships with clients and coworkers. Volunteer, part-time or summer jobs as a social work aide offer ways of testing one's interest in pursuing a career in this field.

In 1987, 41 states had licensing or registration laws regarding social work practice and the use of professional titles. Voluntary certification is offered by the National Association of Social Workers (NASW), which grants the title ACSW (Academy of Certified Social Workers) to those who qualify. For clinical social workers, professional credentials include listing in the NASW Register of Clinical Social Workers or in the Registry of Health Care Providers in Clinical Social Work.

In a descriptive study of human service workers it is helpful to identify personnel and agencies involved at the professional (baccalaureate and graduate) levels. Not only are these persons involved in research and analysis of the occupational area, but there is also a great deal of interaction and task duplication among and between all levels of social/human service personnel. However, baccalaureate and graduate programs are outside the purview of

vocational-technical education. Therefore, the following pages provide a study of social service occupations requiring less than a baccalaureate degree.

According to the Occupational Outlook Handbook (1988-89), human service worker is a generic term for people who hold paraprofessional jobs in such diverse settings as group homes and halfway houses; correctional, mental retardation, and community mental health centers; family, child, and youth service agencies; and, programs concerned with alcoholism, drug abuse, family violence, and aging. Depending on the employment setting and the kinds of clients served, job titles and duties vary a great deal. Among frequently found job titles are those listed below:

alcoholism or drug abuse counselor

case management aide

child abuse worker

community outreach worker

gerontology aide

job coach

mental health technician

mental health/mental retardation assistant

nutrition aide

recreational coordinator

respite care worker

social service technician

social work assistant

volunteer coordinator

other miscellaneous occupations

EMPLOYMENT SITES FOR HUMAN SERVICE WORKERS

Human services workers held about 88,000 jobs in 1986 (Occupational Outlook Handbook, 1988-89). About one-third were employed by state and local governments, primarily in mental health centers, facilities, and programs for the mentally retarded and developmentally disabled and public welfare agencies. About one-fourth worked in agencies offering adult day care, group meals, crisis intervention, counseling and other social services. Some supervised residents of group homes and half-way houses. Human services workers also held jobs in clinics, community mental health centers and psychiatric hospitals. Below is a listing of occupations and job titles and the percentage by employment site:

1. 34% mental health technician, social work assistant, alcoholism or drug abuse counselor, and child abuse worker

2. 25% social service technician, case management aide, gerontology aide, and respite care worker.

3. 41% residential counselor, community outreach worker, job coach, and other miscellaneous occupations.

KEY EMPLOYERS

Despite differences in what they are called and what they do, all human service workers perform under the direction of professional staff. The amount of responsibility these workers assume and the degree of supervision they receive vary a great deal, however. Those employed in mental health settings, for example, may be assigned to assist a treatment team made up of social workers, psychologists, and other human service professionals. Among the employment settings are those listed below:

group homes for mentally retarded;

sheltered workshops;

regional mental health treatment centers;

schools, working under professionals with the developmentally disabled;

child care facilities;

homeward bound--home for the multi-handicapped;

group homes for the handicapped;

health care facilities, activity coordinator, recreation therapist;

mental health facilities;

residential treatment centers;

adult day care centers;

community support services; and

adult foster care services.

## HUMAN SERVICE WORKER EDUCATION

According to the Occupational Outlook Handbook (1988-89), human service workers have a wide range of educational backgrounds. However, the kind of work they do and the amount of responsibility entrusted to them often depend on formal education attainment. Workers with a high school education or less are likely to perform clerical duties. Those with a college degree might be assigned to do direct counseling, coordinate program activities, or manage a group home.

Generally speaking, academic programs in this field educate students for particular kinds of roles--an associate degree program might specialize in preparing students to work with developmentally

disabled adults, for example. As is also the case in social work, rehabilitation counseling and other practice-oriented disciplines, educators maintain continuing contact with local employers to keep up with their changing needs. Students are exposed early and often to the kinds of situations they may encounter on the job.

FORMAL EDUCATION PROGRAMS

According to the Occupational Outlook Handbook (1988-89), in 1985 approximately 300 certificate and associate degree programs in human services or mental health were offered at community colleges and junior colleges, vocational-technical institutes, and other postsecondary institutions. In addition, about 150 programs offered a bachelor's degree in human services and a small number of programs leading to a master's degree in human services administration were offered. A dissertation by James (1981), Education and Training of Human Service Workers, included a table showing the geographic location of those institutions offering two and four year programs in human services. (See Table 1.) This list included 305 programs: 125 at a four year level and 180 at a two year level.

The College Blue Book, 19th Edition, Occupational Education (1988), included the names of programs and the educational institutions providing the programs. Institutions in 33 states are listed under Human Services, institutions in 33 states are listed under Mental Health Technology and institutions in 5 states are listed under Mental Retardation Assistant (See Table 2). Other titles used in college catalogues include: Chemical Dependency Specialist, Human Services Technology, and Therapeutic Recreation.

Table 1

Geographic Location of Two and Four Year Programs in Human Service Education

| Geographic Location: H.E.W. Regions | 4-Year N | 4-Year % | 2-Year N | 2-Year % | Total N | Total % |
|---|---|---|---|---|---|---|
| I<br>Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont | 8 | 6% | 15 | 8% | 23 | 8% |
| II<br>New Jersey, New York, Puerto Rico, Virgin Islands | 6 | 5% | 20 | 11% | 26 | 9% |
| III<br>Delaware, Maryland, Pennsylvania, Virginia, Washington, DC, West Virginia | 17 | 14% | 29 | 16% | 46 | 15% |
| IV<br>Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina | 18 | 14% | 25 | 14% | 43 | 14% |
| V<br>Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin | 29 | 23% | 32 | 18% | 61 | 20% |
| VI<br>Arkansas, Louisiana, New Mexico, Oklahoma, Texas | 13 | 10% | 8 | 4% | 21 | 7% |
| VII<br>Iowa, Kansas, Missouri, Nebraska | 2 | 2% | 16 | 9% | 18 | 6% |
| VIII<br>Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming | 9 | 7% | 9 | 5% | 18 | 6% |
| IX<br>Arizona, California, Hawaiian Islands, Nevada, American Samoa, Guam, Wake Island | 17 | 14% | 17 | 9% | 34 | 11% |
| X<br>Alaska, Idaho, Oregon, Washington | 6 | 5% | 9 | 5% | 15 | 5% |
| Total | 125 | 100% | 180 | 99% | 305 | 101% |

*James, Vernon R. (1981). The education and training of human service workers: An analysis of a national system. Unpublished dissertation, University of Massachusetts.

Table 2

Number of States Having Human Service Programs by Title

| PROGRAM TITLES | NUMBER OF STATES LISTED |
|---|---|
| Alcohol Counseling | 8 |
| Child Care and Guidance | 42 |
| Community Aid | 14 |
| Drug Abuse Counseling | 4 |
| Drug and Alcohol Counseling | 3 |
| Geriatric Care | 17 |
| Human Services | 33 |
| Mental Health Technology | 29 |
| Mental Retardation Assistant | 5 |
| Social Service Aide | 23 |
| Social Work Technology | 18 |

To determine the extent to which human services programs were offered through proprietary schools, the **Directory of Educational Institutions, 1988**, Association of Independent Colleges and Schools, was reviewed. The directory included institutions, as well as branch campuses listed only one (1) program in Human Services in proprietary schools. The program is located in the West Indies on Grand Cayman Island.

International College of the Cayman Islands
P.O. Box 136
Newlands, Grand Cayman

STATEWIDE AGENCY TRAINING

A study by the Southern Regional Education Board (1983) surveyed all 50 state mental health manpower development offices. The study sought to identify the statewide mental health workers. According to the report, mental health workers were defined as, "employees providing direct services to patients or clients, who require training to provide

those services competently, but whose education when hired ... is not in one of the traditional professions such as, nursing."

The survey responses, received from 25 states, were from a representative cross-section of all states with no apparent bias in size or section of the country. Training materials, received from the participating states, were reviewed to identify the major approaches being used in training paraprofessionals and a more detailed analysis was made of those states using each approach of the specific topics and training design used for each of the major subjects. The major approaches used in different states to train paraprofessional mental health workers are listed below:

1. Materials that govern or support the basic training of mental health workers:

Materials limited to training objectives, instructional outlines, and suggested texts.

Materials that include instructional materials, lesson plans, work sheets, and other assists to help the instructor.

2. Materials that are designed for successively higher levels of employment and are usually linked to opportunities for advancement to these higher positions or grades.

3. Statewide agreements with colleges or universities to define the conditions for training agency workers and offering a degree or certification which the state assists its employees in obtaining.

4. Training materials for specialized subjects, often available to several levels of staff.

5. Decentralized responsibility for developing training programs and materials, with varying degrees of assistance in coordination and arrangements from central manpower staff.

In the course of the project it was discovered that state staff responsible for training in mental health agencies were not aware of the many excellent training programs and unique approaches to training that had been developed in many states. Because of this, many states have duplicated efforts and others have never developed training programs for mental health workers when, in fact, ideas and materials could have been borrowed. The study did not indicate to what extent the states involved in the survey exchanged information and made use of the information generated to modify or expand their training programs.

CURRICULUM DEVELOPMENT

A search of the Educational Resources Information Center (ERIC) data base, 1989, revealed several examples of curricular activities for education/training of human service workers.

Vancouver Community College (1984) used the Develop a Curriculum (DACUM) method to identify the competencies needed by human service workers in non-governmental agencies. These non-government organizations deal with the full range of human problems in society including many of those listed previously. Services are offered by churches, charities, corporations, non-profit societies, special interest groups, and others. Some of the groups are large, such as the YMCA and Lion's Society for Crippled Children; most are small and less well known.

As a group, these agencies employ first line staff members who are not social workers, psychologists, nurses, or other professionals.

Most of the training occurs on-the-job. The report includes a description of the development of a DACUM chart listing skills required by human service workers in the private sector. The second section of the report describes development of curriculum objectives. For curriculum development purposes these competencies were divided into three categories: (a) Relations With Clients, (b) Relations With Own Agency, and (c) Relations With the Community.

The objectives were written without including conditions, criteria or standards for state behaviors. These components were omitted so that the curriculum could be localized by the instructor to the specific agency or institution where students would be practicing.

A student manual and instructor's guide have been prepared by the University of Texas, Austin (Edwards, 1984). The material is self contained and individualized. However, it should be used under supervision of an instructor. The material was designed for use by either secondary or postsecondary students. Modifications may be required for students with special needs: limited English proficiency (LEP), as well as handicapped, educationally disadvantaged and/or nontraditional.

A thirty semester hour certificate program to prepare paraprofessionals to work in mental health and gerontology facilities/agencies was developed by Madonna College, Michigan (Glazek, et al., 1983). Overall purpose of the program was to prepare individuals for work with older adults to help them maintain their mental well being. The community model, emphasizing prevention of mental illness, was used instead of the medical model which provides psychiatric services to the mentally ill.

Trainees in the program were provided experiences in a variety of community agencies, including: nursing homes, homes for aged, senior adult activity centers, and day care centers. Classes were scheduled to accommodate students with full-time employment. The final report indicates that the project met the following goals:

1. Mental health care of the elderly in the community improved because of the increase of competent paraprofessional workers.

2. The program effectively met the educational needs of the trainees and increased their changes for meaningful employment.

3. The Gerontology Department added a valuable program to its curriculum and strengthened its ties with the community as well as local and state agencies.

Two sets of skills and attitude inventories for human service workers were prepared in Hawaii by Broadbent: Child Care (1987) and Adult Care (1988). Both inventories list skills and attitudes identified as necessary by professionals in the human service fields of child care and adult care. Both inventories used the occupational analysis process as a mechanism whereby educators can compare that which they teach against what the human services industry feels is relevant. The skills, knowledge, and attitudes identified by industry representatives are weighted and given a rating indicating their relative importance at four levels: essential, important, desirable, and not necessary. The documents are not curriculum guides but may be used as the basis for curriculum development or modification.

HUMAN SERVICE ABSTRACTS

Another source of information available for human service professionals and paraprofessionals is the Journal of Human Services

Abstracts, a National Clearinghouse for Improving the Management of Human Services (1983). The journal contains a wide range of documentation on subjects of concern to those responsible for the planning, management, and delivery of human services. Each issue contains abstracts of 150 documents acquired by project SHARE, operated for the Office of the Assistant Secretary for Planning and Evaluation, Department of Health and Human Services by Aspen Systems Corporation.

INSTRUCTORS

This study found that instruction in educational programs for human service workers was carried out by professionals in related social service areas: social workers, psychologists, sociologists, and nurses.

## PRESENT/FUTURE STATUS

MAJOR CONCERNS IN HUMAN SERVICES OCCUPATIONS

Information related to major concerns was obtained through several interviews: an interview with instructors and administrators associated with human service educational programs, an interview with the Assistant Chief, Division of Social Service, Arlington County VA and from the James dissertation (1981), cited above. Major concerns elicited from these sources are listed below.

- Lack of a strong professional association;
- Lack of state/national standardization or certification;
- Lack of mobility, due to the first two concerns listed;
- Low salaries;
- A need for articulation with social services occupations to provide a career ladder;
- Lack of adequate institutional supervision;

. Lack of in-service/continuing education;

. The limitations placed on personnel utilization by prospective payment plans; and

. Women returning to work leaving fewer volunteers to provide family and community services.

Further investigation is needed to verify these concerns and determine the extent to which these concerns vary from one program to another and from one geographic area to another.

CURRENT TRENDS

The information on current trends was accumulated from the same sources as those listed for concerns and are listed below:

1. There is an increasing demand for human services workers due to the aging population, an increase in the preservation of children born prematurely or with major birth defects and an increase in the number of persons whose lives are preserved.

2. There is an increasing need for persons who give service in a "one on one" relationship, as well as workers to provide institutional care.

3. People are more aware of their human rights and more assertive, demanding these rights in various ways, e.g., patient advocacy, ombudspersons and patients' bill of rights. For example, handicapped persons are demanding placement in the "least restrictive environment," which requires more support services and personnel.

4. Public schools are mandated to work with all students from birth to twenty-one years of age, including those with special needs.

5. Prospective payment plans, which limit the amount hospitals may be paid for specific conditions, have led to patients being sent

home "quicker and sicker" and needing help at home or in a long term care facility.

6. A new type of worker (may be a volunteer) has emerged, the respite care worker, who serves as a relief worker to the primary care giver in the home.

7. There is need for additional facilities and services in local communities since people may choose not to have treatment for mental illness or other disease conditions, e.g., treatment in a psychiatric hospital.

8. The concept of hospice care is growing. Patients with terminal illnesses may choose to stay at home rather than in a hospital. Emotional, as well as physical support is needed by the patient and the family.

9. The trend continues to downsize treatment centers and to increase community based group homes.

10. Human service workers are needed to work with abused persons: children, wives, and the elderly.

MAJOR ORGANIZATIONS

According to James (1981), the major organization associated with social service professions is the Council on Social Work Education. Organizations concerned with human service technicians and workers include (a) National Association of Human Service Technologists (NAHST) (b) National Commission for Human Service Workers (NCHSW), (c) National Organization of Human Service Educators (NOHSE), and (d) National Organization of Human Service Workers (NOHSW).

In 1981 the NAHST claimed a membership of 2,000. NOHSW and NOHSE were relatively small, each claiming a membership of about 300 persons.

These four organizations are relatively small for national organizations and are apparently not well known among human service educators. Further investigation is needed to gather information about the current status, mission, membership, etc., of those of other related organizations.

PERTINENT LEGISLATION

Mental Health Systems ACT - 42 U.S.C. 9501

Community Mental Health and Mental Retardation Centers Act, 1963

Handicapped American Act

Vulnerable Adult Act

Social Security Act and Amendments - P.L. 98.21

Family Support Act - P.L. 100.485

An analysis of how each of these laws affect human service occupations and human service education programs needs further study.

STATE REGULATION OF HUMAN SERVICE WORKERS

According to a study of State Regulation of the Health Occupations and Professions (1986-87), several states regulate human service workers. State licensure was required in Kansas, mental health technicians, and California, psychiatric technicians. Certification was a requirement in three states: Florida, alcoholism counselor; Virginia, counselors, alcoholism and drug; and Wyoming, substance abuse counselor. Only one state, Maine, required registration for substance abuse counselors.

THE NEED FOR FUTURE STUDY

Several areas needing further investigation were noted as this study progressed:

1. There is little information on career ladders reaching from the aide/assistant level to the technician level and up to the professional level. References to articulation and career ladders were made in several reports, Edwards (1984), Broadbent (1988), Wichowski (1983), and Edwards (1984). However, there is need for a study to identify the specific career tracks available in human service education.

2. The Southern Regional Education Board (1983) study identified a need for an information exchange on training/education programs available in the fifty states. Information on core course/competencies for the various categories of human service workers would greatly benefit those responsible for setting up and administering training programs.

3. Several laws affect the practice of human service workers. A review and analysis of federal/state laws affecting human services would be helpful to providers, administrators, and educators in human service occupations/categories.

4. James (1981) indicated a need for state/national standardization or certification. Apparently, this need has not been met. The present study did not reveal any compilation of state requirements for regulation of human service workers. One source listed the states having regulations but provided no details as to specific regulations nor any correlation among those state requirements.

5. Information was "scarce to none" on the influence of professional organizations on the practice and education of human service workers. Further study in this area would be beneficial.

## SUMMARY

There is ample evidence of the increasing need for a variety of human service workers. There is also evidence of a need for some method of standardization in the training/education of this category of workers. A great deal of activity is taking place at various levels in many states. With no central information center or professional group to provide networking, there is duplication of effort and probably a lack of adequate training/education in some areas. A coordinated effort by some group, association, or agency to gather and disseminate information on a variety of topics related to human services would render a valuable service to local, state, and federal institutions/agencies striving to provide services for those in need.

## REFERENCES


Alley, Sam, et al. (1979). Case studies of mental health paraprofessionals--Twelve effective programs. Human Services Press, New York.

Betz, Roger C. (1988). Human services program review: Arrowhead MN community college region. Unpublished report for Minnesota Community Colleges, St. Paul.

Broadbent, William. (1987). An inventory of skills and attitudes necessary for a career in human services/adult care. Hawaii State Department of Education, Honolulu. Office of the Director for Vocational Education. ED297126.

Broadbent, William. (1988). An inventory of skills and attitudes necessary for a career in human services/child care. Hawaii State Department of Education, Honolulu. Office of the Director for Vocational Education. ED297127.

Catalog, 1987-89. Delaware Technical & Community College, Wilmington, DE.

Clavner, Jerry B. and Clavner, Catherine. (1987). Motivating the potential social worker. Paper presented at the Meeting of the Ohio College Association of Social Work Educators, October 17, 1987. ED289785.

Clinical mental health service providers: A comparative analysis. (1988). Compiled by the America Association for Counseling and Development and the American Mental Health Counselors Association.

Coad, Cynthia. (1985). Job placement program and follow-up system. Orange County Educational Consortium for Competency Based JTPA Vocational Training. North Orange County Community College District, Fullerton, CA. ED271576.

Curriculum for Training and Job Placement Personnel in Michigan. (1986). Ferris State College, Big Rapids, MI. Center for Occupational Education. ED284047.

Daytona Beach Community College, 1988-89. Daytona Beach Community College District, Daytona Beach, FL.

Directory of Education Institutions. (1988). Association of Independent Colleges and Schools. Washington, D.C.

Edwards, Kathy. (1984). Mental health worker. Student's manual and instructor's guide. Texas University, Austin. Extension Instruction and Materials Center. ED260187.

Garrison, Shirley, et al. (1983). A patient representative in-service journal. Highland Park Hospital, IL. ED247380.

Glazek, Marianne S., et al. (1983). Aging and mental health certificate program. Final Report 1979-1983. Madonna College, Livonia, MI. ED244202.

Griest, John H., et al., editors. (1987). Research in mental health computer applications: Directions for the future. Mental Health Service System Reports, Series DN, No. 8. U.S. Department of Health and Human Services/PHS/NIMH/Alcohol, Drug Abuse, and Mental Health Administration. Rockville, MD.

Holler, Ronald F. and DeLong, George. (1973). Human services technology. The C. V. Mosby Company, St. Louis, MO.

Human service workers. Education, social service, and related occupations. Occupational Outlook Handbook, 1988-89 Edition. U.S. Department of Labor, Bureau of Labor Statistics, Bulletin 2300-5, 10-12.

Interview with Lynda N. Eubank, Assistant Chief, Division of Social Services, Department of Human Services, Arlington County Government, Arlington, VA, May 1, 1989.

Interview with Robert Maslyn, Chairman of the Human Services and Health Division of the American Society of Public Administrators, Alexandria, VA, September 14, 1989.

Interview with Jean Soltis, Gerry Rehnke, Carolyn Rosdahl, Anoka Technical Institute and Julie Eszlinger-Jensen, State Supervisor, Postsecondary Health Occupations, State Board of Vocational-Technical Education, St. Paul, MN, May 25, 1989.

James, Vernon R. (1981). The education and training of human service workers: An analysis of a national system. An unpublished dissertation, University of Massachusetts.

Journal of Human Services Abstracts. (October 1983). Volume 8, Number 4. Aspen Systems Corp., Rockville, MD. ED237765.

McPheeters, Harold L. (1983). Gaining employer sanctions for certification of human service workers. National Commission for Human Service Workers.

Mental health service system reports and statistical notes publications listing. (1987). U.S. Department of Health and Human Services, National Institutes of Mental Health, Public Inquiries Branch, Rockville, MD.

Metha, Arlene, et al. (1983). Exploring nontraditional and new emerging occupations in vocational education. Vocational Guidance Quarterly, 31:4, 276-279, June. ED287837.

Minnesota Community Colleges. (1988). Minnesota Community College System, St. Paul, MN.

Recommendations: Health Professions Education. A report to the southern regional education board by its commission on health and human services. (1986). Southern Regional Education Board, Atlanta, GA. ED273226.

Rusnell, Dale and Phillips, Chris. (1984). Foundations for a curriculum in human services work. British Columbia Department of Education, Victoria. Ed252747.

Seiler, Gary, Brooks, David K., Jr., and Beck, Edward S. (1987). Training standards for mental health counselors. Journal of Mental Health Counseling, 9 (4), 199-209.

Sinclair, Lori. (1985). Behavioral patterns in mental health and mental illness--adults: PR IIA. Graduate seminar paper, University of California at Los Angeles. March 13. ED258619.

Stanton, Michael. (1988). Treating addictions. Occupational Outlook Quarterly, 32 (4), 19-26.

State Regulation of the Health Occupations and Professions. (1986-87). Final Report. The National Clearinghouse on Licensure, Enforcement, and Regulations, The Council of State Governments.

Urban Job Center for Women. (1987). Final Report. Middlesex County Vocational and Technical High Schools, New Brunswick, NJ. ED287054.

Wichowski, Chester, et al. (1983). Family and individual service. New Jersey Vocational-Technical Curriculum Laboratory, New Brunswick. ED236404.

HO 1

## HUMAN SERVICE WORKERS - JOB TITLES

Alcoholism or Drug Abuse Counselor
Case Management Aide
Child Abuse Worker
Community Outreach Worker
Gerontology Aide
Job Coach
Mental Health Technician
Mental Health/Mental Retardation Assistant
Nutrition Aide
Recreational Coordinator
Residential Counselor
Respite Care Worker
Social Service Technician
Social Work Assistant
Volunteer Coordinator
Other Miscellaneous Occupations

## EMPLOYMENT SITES

| | |
|---|---|
| 34% | Mental Health Technician<br>Social Work Assistant<br>Alcoholism or Drug Abuse Counselor<br>Child Abuse Worker |
| 25% | Social Service Technician<br>Case Management Aide<br>Gerontology Aide<br>Respite Care Worker |
| 41% | Residential Counselor<br>Community Outreach Worker<br>Job Coach<br>Other Miscellaneous Occupations |

HO 2

## HUMAN SERVICE WORKERS EMPLOYERS

Group homes for mentally retarded
Sheltered workshops
Regional mental health treatment centers
Schools, working under professionals with the developmentally disabled
Child care facilities
Homeward bound, home for the multi-handicapped
Group homes for the handicapped
Health care facilities, activity coordinator
recreation director
Mental health facilities
Residential treatment centers
State and local government social service departments
Rehabilitation centers
Adult day care centers
Community support services
Adult foster care services

## HUMAN SERVICE EDUCATION PROGRAMS*

| 4 year | 2 year | TOTAL |
|---|---|---|
| 125 | 180 | 305 |

## HUMAN SERVICE PROGRAMS BY TITLE AND BY STATE*

| PROGRAM TITLES | NUMBER OF STATES |
|---|---|
| Alcohol Counseling | 8 |
| Child Care and Guidance | 42 |
| Community Aide | 14 |
| Drug Abuse Counseling | 4 |
| Geriatric Care | 17 |
| Human Services | 33 |
| Mental Health Technology | 29 |
| Mental Retardation Assistant | 5 |
| Social Service Aide | 23 |
| Social Work Technology | 18 |

Other titles used in college catalogs:

Chemical Dependency Specialist
Human Service Technology
Therapeutic Recreation

*James, Vernon R. (1981). The education and training of human service workers: An analysis of a national system. Unpublished dissertation, University of Massachusetts.

HO 3

## STATEWIDE AGENCY TRAINING*

1. Materials to govern or support basic training for mental health workers.

   . Training Objectives, Instructional Outlines, Suggested Texts

   . Instructional Materials, Lesson Plans, Work Sheets, Other Assists to help instructors

2. Materials designed for successively higher levels of employment linked to advancement to higher positions or grades.

3. Statewide agreements with colleges/universities

   . Defined conditions for training agency workers

   . Offered a degree or certification with state assistance

4. Training materials for specialized subjects

   . Usually available to several levels of staff

5. Decentralized responsibility for developing training programs.

(1983). Southern Regional Education Board, Atlanta, GA.

*Mental Health Worker Training. (1983). A state-of-the-art reference on statewide mental health agency training programs. (1983). Southern Regional Education Board, Atlanta, GA.

## CURRICULUM FOR HUMAN SERVICE WORKERS IN NON-GOVERNMENT ORGANIZATIONS*

Competencies Identified for Curriculum Development

I. Relations with clients

II. Relations with own agency

III. Relations with the community

*Rusnell, Dale and Phillips, Chris. (1984). Foundations for a curriculum in human services work. British Columbia Department of Education, Victoria.

HO 4

## MAJOR CONCERNS IN HUMAN SERVICE OCCUPATIONS

- Lack of a strong professional association
- Lack of state/national standardization or certification
- Lack of mobility, due to the first two concerns
- Low salaries
- Need for articulation with social service occupations to provide a career ladder
- Lack of adequate institutional supervision
- Limitations placed on personnel utilization by prospective payment plans
- Women returning to work - fewer volunteers to provide family and community services

## CURRENT TRENDS IN HUMAN SERVICE OCCUPATIONS

- There is an increasing demand for human service workers due to:
  aging population,
  preservation of children with major birth defects,
  preservation of lives following major injuries, and
  increased need for personal care services.
- People are more aware of human rights and more assertive in demanding those rights.
- Public schools are mandated to provide services for students having special needs
- DRGs have limited the amount hospitals are paid for specific conditions leading to dismissals that are "quicker and sicker."
- A new category of worker, respite care worker, provides relief to the primary care giver in the home.
- There is a need for additional facilities in local communities.
- The concept of hospice care is growing.
- The trend continues to downsize treatment centers and increase the number of community based homes.
- Workers are needed to help abused persons: children, wives, elderly.

HO 5

## THE NEED FOR FUTURE STUDIES IN HUMAN SERVICE OCCUPATIONS

- Information exchange of training/education programs
- Review and analysis of federal/state laws affecting human services
- State/national standardization or certification
- Professional organization(s) related to practice and education of human service workers

# HEALTH OCCUPATIONS EDUCATION REQUIREMENTS IN THE UNITED STATES AND TERRITORIES

Cynthia Chappelka

Division of Vocational and Technical Education

Virginia Polytechnic Institute

and State University

Blacksburg, VA

# HEALTH OCCUPATIONS EDUCATION REQUIREMENTS IN THE UNITED STATES AND TERRITORIES

Cynthia Chappelka

ABSTRACT: Certification requirements for health occupations education (HOE) instructors are different from those of academic and most other vocational teachers because (a) many of the HOE teachers lack the baccalaureate degree and (b) the teaching content and methodology of HOE programs vary markedly from other vocational education programs such as home economics. As a consequence, HOE certification requirements are centered around the pre-employment conditions which differ from those typically required of other vocational education and academic teachers which are based primarily on approved degree requirements.

The purpose of this study was to collect and abridge HOE certification data from 53 states and territories for the purpose of aiding state departments of education and other agencies to make comparative studies for certification study and improvement. Data collected from printed certification regulations received from 53 states and territories were abridged and categorized as (a) pre-employment requirements, (b) occupational experience requirements, (c) certification requirements, and (d) renewal requirements. From the aforementioned data, comparative tables were developed in the areas of (a) work experience

Cynthia Chappelka, Division of Vocational and Technical Education, Polytechnic Institute and State University, Blacksburg, VA 24061.

requirements, (b) recency of work experience requirements, (c) licensure or certification requirements, (d) pre-employment basic skills evaluation requirements, (e) new teacher orientation courses/workshops, (f) states with requirements leading to degree completion, (g) certificate levels and renewal periods, (h) highest level for full certification, (i) course/workshop requirements for initial certification, (j) course/workshop requirements for second level certification, and (k) course/workshop requirements for third and successive levels of certification.

Comparative data and corresponding specialized regulations were analyzed and discussed. Evolving patterns in state HOE regulatory standards were delineated. Although the emergence of new concepts was in evidence, no attempts at standardization or reciprocity were observed.

Baccalaureate degree requirements for initial certification were found in five states. Ten states required the baccalaureate degree for full certification. Connecticut requires a baccalaureate degree for instructors teaching in licensed practical nursing programs. The remaining 37 states specified full level certification at a point less than the baccalaureate degree.

Other findings include more states requiring recency in occupational experience, fewer "life" certificates, and more rigorous certification requirements.

---

## PERSPECTIVE

The Vocational Educational Act of 1963 encouraged the states to establish programs for training assistants for health occupations. This encouragement was continued in the Vocational Education Amendments of 1968 (Roberts, 1971). Health occupations programs have continued to increase in response to community occupational needs.

Every state requires that a person have a certificate in order to teach in the public schools (Duenk, 1989). According to Ware (cited in Hersh, 1977) a certificate is the legal evidence of competence and the authorization to receive payments from public funds for teaching.

Certification authority is typically vested in the State Department of Education. In the case of vocational education, certification is the authority of the Bureau of Vocational Education. In most states, minimum certification requirements are set by statute, and the state board has authority to set additional standards (Ware, cited in Hersh, 1977). Each state has a prescribed route to pursue certification. Pre-employment and certification requirements vary greatly among states but generally include (a) years of occupational experience, (b) recency of such experience, (c) licensure or certification requirements, (d) basic academic skills evaluation, (e) pre-service orientation requirements, (f) progressive certificate levels and requirements, (g) full certification requirements, and (h) renewal of the full certificate.

A large number of health occupations teachers are recruited directly from their specialty area often without baccalaureate degrees. With an increased impetus among HOE personnel to achieve greater status

among all education practitioners, state departments of education have raised standards markedly during the past decade.

Stinnett's study (cited in McQuay, 1977) has stated that the most frequent criticism of teacher certification is not allowing the free mobility of teachers across state lines by the acceptance of teachers' qualifications by all states. Health occupations teachers have the added handicap of having to be licensed in whatever state they are teaching.

## PURPOSE AND OBJECTIVES OF STUDY

This study was descriptive in nature. The primary purpose was to collect HOE certification information from all states and territories for the purpose of aiding certification committees in (a) making comparative assessments, and (b) gaining new insights into emerging trends. Improvements in new certification can only come about if new concepts developed throughout the nation are shared. Too, comparisons may contribute to certification standardization which could help towards reciprocity between states.

The National Board for Professional Teaching Standards has released initial guidelines describing what teachers should know and be able to do to qualify for national certification (Watkins, July 26, 1989). If these guidelines become law, it may ease reciprocity for health occupations education teachers with bachelor degrees.

The specific objectives of this study were to collect, analyze and discuss the following HOE certification data from 53 states and territories:

1. work experience requirements,
2. recency of occupational experience,

3. pre-employment basic skills evaluation requirements,
4. licensure or certifiction requirements,
5. new teacher orientation course/workshop requirements,
6. states with requirements leading to degree completion,
7. certificate levels and renewal periods,
8. highest levels for full certification,
9. courses/workshops required for initial certification,
10. courses/workshops required for second level certification, and
11. courses/workshops required for third and subsequent levels of certification.

## REVIEW OF LITERATURE

There is a paucity of published research in the vocational certification area. An exhaustive search reveals virtually nothing conclusive regarding the relationship between quality teaching and types of certification requirements. Nearly all reporting states dealt with one or more of the eleven variables indicated in the aforementioned objectives.

Miller (1982) and Sherman (1983) indicated that HOE teachers differ markedly from teachers from most other disciplines in the type of abilities required to function effectively in a laboratory environment. They differed from academic teachers and most other vocational instructors in that (a) the subject area is learned primarily in the clinical setting, and (b) the requirements of good laboratory and clinical management differ from other teaching environments.

Sherman (1983) indicated that cognitive and psychomotor skills taught by HOE teachers change constantly as technology changes,

therefore a continual upgrading should be part of HOE certification requirements. Because students move directly from the instructional setting to the employment market without a time lapse, the updating component becomes critical.

Noting the aforementioned differences between vocational and academic teaching preparation, HOE certification requirements are different from academic teachers and other vocational teachers except trade and industrial instructors. Many states identified among their certification requirements specific course content either in terms of course titles or areas of study. Brantner (1974) indicated that thirty-three (46%) of the states listed such requirements. He found "Methods of Vocational Teaching" was most often required while "Tests and Measurements" and "Vocational Guidance" were the least specified.

Welch and Garner (1976) in a Pennsylvania study found that the only significant certification variable which had a positive effect on student achievement was the amount of appropriately related college course work completed by the teacher. The study did not support a college degree as being necessary, nor was there a recommendation for an optimum number of college credits.

However, in the HOE areas, the shortages of teachers with bachelor degrees have led some state departments of education (SDE) to develop certification systems which required or encouraged teachers to pursue the baccalaureate degree. Several states required the baccalaureate degree for full certification. The remainder of states and territories designated full certification levels which varied widely in level and renewal requirements. Brantner (1974) found that HOE teachers who were working toward full certification were still certified in some form,

usually with a Provisional or Level I type of certificate. This credential protected the teacher legally regarding state tenure laws. Also, Brantner noted that most states (36) which did not require a baccalaureate degree for full certification still had provisions which allowed or encouraged the HOE teacher to reach that goal.

In the area of work experience there was a great variation from state to state. Brantner (1974) found that the lowest SDE requirement for non-degree teachers was 2,000 hours during the past 10 years with an additional amount of hours waived for postsecondary school experience. The highest requirement for non-degree teachers was 16,000 hours. Brantner's later study (cited in USDE, 1985) showed the same range of work experience requirements.

Warner's study (cited in USDE, 1985) states that, among 50 states studied, occupational experience credits were tending to decrease as educational requirements increased. He indicated that many states required an additional number of hours of occupational experience "beyond the learning period." This learning period varied in interpretation, but usually included a baccalaureate degree as one definition of the learning period. Hence, associate or baccalaureate degree graduates may often substitute a commensurate amount of collegiate work for occupational experience.

Whether an increased amount of work experience increased teaching competency is still unresolved. Warner (1980) contended that there was no positive relationship between work experience in years and occupational competencies. Hux (1980) refuted this notion by concluding that there was a positive relationship. The optimum amount

of work experience necessary for establishing teacher competency has not been studied sufficiently to draw any specific conclusions.

The concept that occupational knowledge and skill should translate into college credit for the HOE teacher has been gaining in momentum. Virginia Polytechnic Institute and State University and the University of Tennessee were awarding such credit since 1968 (Duenk, 1968). Several states now require beginning teacher workshops (Ohio State Board of Education, 1987) prior to teaching. Missouri Department of Secondary and Elementary Education (1987) requires attendance at SDE sponsored conferences to maintain certification. Persons with degrees in non-vocational areas may be certified in some states by verifying occupational competency and taking specified courses (Utah State Office of Education, 1987).

## METHODOLOGY

The data utilized in this study were collected from printed HOE certification requirements submitted by state departments of education in 50 states, District of Columbia, Puerto Rico, and the Virgin Islands. Trust Territories of the Pacific and Guam did not respond to inquiries for information. The names and addresses of HOE state supervisors were obtained from the Directory of State Directors with Supervisory Responsibility for Health Occupations Program published by the U.S. Department of Education, Office of Vocational and Adult Education, Division of Vocational Education (February 1988). In those cases where no person was listed as being directly responsible for HOE programs, a phone call was made to ascertain the name and address of the correct individual.

Forty-one responses were gained from the first request for information. The second request produced four responses. The remaining responses were gained through phone inquiries to state certification departments.

A format for collecting data was submitted to a panel of experts and decisions were made regarding parameters of the materials to be collected. In as much as the information received was voluminous and was documented in a variety of ways, the HOE certification materials were abridged and categorized as follows:

1. Pre-employment requirements
    a. Diploma/degree level required
    b. Licensure requirements
    c. Basic skill competency requirements
    d. Pre-service orientation/course requirements
    e. Prior coursework/seminar requirements
    f. Other
2. Work experience requirements
    a. High school graduate
    b. Postsecondary graduate
    c. B.S./B.A. or higher graduate
    d. Recency requirements
    e. Other
3. Certification requirements
    a. Titles of certificates
    b. Requirements for each level
    c. Renewal requirements for each level

4. Renewal

a. Renewal of full certificate requirements

Only occupational preparatory program certification was extracted. Information dealing with specialized requirements for cooperative training, related subjects, and HOE/special education were eliminated from the study in the interest of brevity and a need for identical standards for comparison. This study was limited to secondary HOE certification.

In cases where the materials were not clear, phone calls were made to state department of education officials and certification authorities for further clarification. In numerous situations there were contradictions between requirements as listed in the certification manuals and actual practice as confirmed by telephone. In such cases, printed back-up materials issued by the HOE state agency were requested to validate the accuracy of information.

Following the completion of the aforementioned abridged HOE certification descriptive document, copies were sent to the original respondents in the 53 states and territories. An accompanying letter requested that the documents be examined for accuracy and returned within a two week period if errors were noted. Fourteen states responded with requested corrections and the original document was modified.

The HOE certification document was reviewed by an expert committee to assess ways of recording descriptive materials for use by certification committees and others as sources for comparative data. The decision was made to compile the data into 11 areas as follows:

1. Work experience requirements.

2. Recency of occupational experience.
3. Licensure requirements.
4. Pre-employment basic skills evaluation requirements.
5. New teacher orientation courses/workshops.
6. States with requirements leading to degree certification.
7. HOE certification levels and renewal periods.
8. Course/workshop requirement for initial certification.
9. Course/workshop requirements for second level certification.
10. Course/workshop requirements for third and successive levels of certification.
11. Highest level for full certification and renewal requirements.

Tables were developed for each of the aforementioned areas to present pertinent comparative information which could serve as a basis for HOE certification upgrading and to note evolving concepts in state regulations.

## RESULTS

### Occupational Work Experience Requirements

Appendix B (available from the author) describes occupational experience requirements for beginning teachers. Differentiation is shown for teachers starting at (a) high school or GED level, (b) postsecondary (in an occupational specialty) level, and (c) baccalaureate degree level.

Wisconsin did not offer certification below the baccalaureate degree level. Oregon and Rhode Island based work experience upon local district committee decisions. No attempt was made to interpret the requirements of states which did not have differentiations in work experience at the three different starting levels. Wyoming, for

example, lists 4,000 hours above the learning period for all levels. Without an interpretation of the meaning of "learning period" as translated to work/collegiate experience, no conclusions could be drawn. Delaware, on the other hand, listed the same requirements but identified state licensure, equivalent to the learning period. Several states equated the baccalaureate degree with a four year "learning period." New York and Missouri required that work experience must be consecutive.

Recency of Occupational Experience

Thirty-six states did not have recency of work experience written into HOE certification. Phone conversations with HOE supervisors indicate, however, that most states do consider occupational recency but the decision is left up to state or local discretion. In Appendix C (available from the author), only recency requirements are listed which can be supported by regulation, either from state certification manuals or from materials distributed by a state HOE agency. The least restrictive regulation (Florida) indicates "six weeks in past two years." Nebraska had two different options which tied recency of work experience with collegiate supervised employment. Arkansas's two year working experience requirement must be immediately prior to school employment. New Jersey and Colorado required "paid" experience in the regulations. Phone conversations with numerous other HOE supervisors indicated that paid experiences were most desirable but that the actual decisions were subjective depending on individual situations. New Hampshire indicated in the regulations that recency of work experience was a local decision. In the past five years, more states have added

recency requirements which is a handicap to women who often leave the employment market for several years to raise a family.

Licensure and Certification

All states require that all health occupations teachers hold the licensure, certification, or registration required by their profession. In Appendix D (available from the author), the licensure requirements for HOE teachers are indicated. Connecticut, Georgia, Idaho, Maine, Mississippi, North Carolina, and Rhode Island require that all health occupations teachers be registered nurses.

Pre-employment Basic Skills Evaluation Requirements

The pre-employment basic skills evaluation requirements for HOE teachers are shown in Appendix E (available from the author). In 25 states some type of basic skills test is mandated by regulation. The instruments used vary in scope and content but most deal with general intelligence, reading/writing skills and mathematics. The Pre-Professional Skills Test (PPST) was mandated by three states. The National Teachers Exam (NTE) was required for teachers in two states while a third required that the NTE be completed at the end of the provisional certificate period. The aforementioned test was used in several states for all teachers with baccalaureate degrees, however this information is not included in Appendix E because this study was concerned primarily with non-degree pre-employment requirements.

In Georgia, New Jersey, New York, Pennsylvania, and Wisconsin, enrollment in an approved university program eliminates the need for another basic skills evaluation as this function is being performed at the collegiate level. Alabama, Arizona, Connecticut, Florida, Massachusetts, Pennsylvania, and South Carolina have developed some of

their own testing instruments. It is noted that Pennsylvania utilizes both its own instrument, as well as collegiate assurance of basic skills achievement.

Colorado may use an optional oral examination during the first year of teaching. Please note in Appendix E that in several states basic skills testing can be pre-employment or completed during the initial in-service employment period. Louisiana was the only state which allowed the localities to develop and administer their own basic skills tests.

New Teacher Orientation Courses/Workshops

Appendix F (available from the author) shows the HOE certification requirements for new teacher orientation/workshops. Nineteen states listed such requirements in their certification regulations. Phone conversations with numerous state supervisors indicate, however, that such workshops are a part of the State HOE Conference or were held on an informal basis but were not listed in the regulations. Only seven states required that these courses have college credit. Eight states required non-college credit workshops and seven states allowed credit for either college or non-college experiences. College credit was specified as either two or three semester credits in all cases. Clock hours for non-collegiate activities varied from a low of 24 clock hours to a high of 60 clock hours. In Colorado, Minnesota, North Carolina, and Washington specific courses titles/areas were listed as requirements. Maine and New Hampshire listed local option requirements. New Mexico, Pennsylvania, and Vermont required local development plans which were submitted to and approved by the SDE.

Most states required the new teacher orientation experience as a pre-employment condition but did have provisions for completing the workshop or courses during the specified period of time if a teacher was hired late. Nine states listed "first year of employment" as a requisite time condition.

States With Requirements Leading to Degree Completion

The states with requirements leading to degree completion are shown in Appendix G (available from the author). A close examination of state department of education HOE certification requirements indicated that many states had requirements which enabled but did not require non-degree teachers to reach either associate or baccalaureate degree levels. The rationale of this situation has been based upon the concept that many HOE teachers were in an age bracket where pursuit of a degree was impractical from a time and money standpoint. The belief has been that to plan a program, then, where a degree is required for full certification, might discourage well qualified individuals from entering teaching as a career. In addition, even younger persons who have acquired a minimum amount of collegiate credits might look upon the certification process as "never ending." However, in the draft of the position paper "Improving General and Vocational Education in the High Schools" (August 1989), it is stated "if the state (Virginia) elects to continue the practice of employing vocational teachers who do not have a college degree, an immediate goal should be set to certify only those who demonstrate the ability to do college-level academic work. In addition, the Board of Education should require existing and new non-degreed vocational teachers to complete a degree within a

designated number of years and to make minimum progress each year toward a goal."

Eight states had non-degree requirements which led to baccalaureate degree completion. Georgia and Kentucky required completion of the associate degree for full certification. South Dakota required completion of the associate degree before renewal of the five year certificate. Kansas, Maine, Puerto Rico, and Wisconsin required the baccalaureate degree for initial certification. In Connecticut, a baccalaureate degree was required if an instructor was teaching a licensed practical nursing program. Even states which accepted the associate degree as full certification did provide avenues which encouraged baccalaureate degree completion. Also salary adjustment based on credit earned, acted as a further inducement toward degree completion.

In all states listed in Appendix G except Kansas, Maine, Puerto Rico, and Wisconsin, admission to a university program was a requirement of level one certification. A program planned and monitored by the university is more likely to tie in with a feasible delivery system.

Certificate Levels and Renewal Periods

In Appendix H (available from the author), the various certification levels and renewal periods which lead to full certification for Health Occupations Education teachers are shown. Alaska, Nebraska, Puerto Rico, and Wyoming have mandated only one level for non-degree personnel. All of the aforementioned states have renewal requirements where advancement to a higher level of certification was not required for non-degree personnel. Wisconsin's

single full certification level was for degree teachers only. At the opposite end of the spectrum, Kansas, Michigan, North Carolina, Ohio, Pennsylvania, and Tennessee have specified four levels. It should be noted, however, that teachers were not always required to hold all levels before reaching full certification. Michigan, for example, had an Annual Authorization (not considered a certificate) which was utilized only when second level qualified teachers were not available. New York HOE teachers may start at any level, depending on a combination of prior education and work experience. The same was true for several other states. Such information can be determined from examining the abridged HOE requirements for 53 states and territories found in Appendix A.

Renewal periods varied from annual initial renewals found in twenty-four states to one state which had a 10-year initial renewal. The latter (Wyoming) required that teachers advance at a rate of 4.5 semester credits per year up to a total of 60 semester credits in 10 years. At higher levels of certification, the longest renewal period was found in Alabama which allowed 10 years for renewal of the highest (full) certificate. Time requirements were not mandated for the second and third levels of Ohio certification. Instead, teaching experience and credit requirements determined the length of certification. Life certificates at the full certification level were given to Illinois, Maryland, New Jersey, Rhode Island, and Texas. Localities enforced renewal at one or more levels in Connecticut, New Hampshire, and New Jersey.

Renewal periods may be extended upon request in most states. In Idaho the initial certificate, although valid for one year may be

renewed as long as progress toward the second level is evidenced. In Illinois the first level certificate may be renewed only if no person qualified for higher certification is available.

Highest Level for Full Certification and Renewal Requirements

Although the highest levels for full certification are found in the previous table, the requirements for maintaining this level are shown in Appendix I (available from author). The requirements varied from no renewal requirements (life) to completion of baccalaureate degree requirements. In Wisconsin, a state which required the baccalaureate degree for initial certification, six semester credits were required, approved locally. Three semester credits may be accomplished by approved supervised work experience.

Staff development workshops, either college credit or non-college (clock hours), were given as an option or requirement in 33 states. Attendance at state HOE conferences, although an option for renewal in many states, was required in Kansas and Missouri. Renewal of full certification was initiated and monitored locally in Maine, Mississippi, New Hampshire, and North Dakota. Texas issued a life certificate but also allowed school districts to require coursework or in-service.

Courses, Workshop Requirements for Initial Certification

Appendix J (available from the author) shows professional education, general education, and other requirements required for initial certification. Thirty-two states had specific professional education course/workshop requirements for initial endorsement. Nine states delegated this responsibility to the universities where teachers were enrolled in degree programs as approved by SDE regulations. In

two states, New Hampshire and Oregon, a plan for all certification requirements was planned locally and submitted for SDE approval. In the remaining 12 states professional requirements were not specified separately from other requirements, i.e., nine credits of approved courses, etc. The most frequent professional course requirement for initial certification was Methods of Teaching, required by 10 states. The least frequent requirements were safety, educational psychology, and youth organizations, required by one state each. Eleven states allowed teachers to select from a designated list of professional course areas. Twelve states required general education courses for initial certification. Six states allowed selection from a given list of general education areas. The remainder of states required courses in specific areas or allowed some selected courses along with designated required courses or general education areas.

Thirty-seven states had supplementary requirements which did not fit the aforementioned professional or general education course/area requirements. These were (a) local plan submission, (b) new teacher workshops, (c) college/non-college specialized workshops, (d) accomplishment of designated SDE/local competencies, (e) degree requirement (associate or baccalaureate degree), (f) submission of a university degree program, and (g) any type of approved courses.

The total initial college credit requirements varied from no credits/workshop (Arizona, Option A) to the baccalaureate degree. The total clock hours for non-college activities varied from 0 (41 states) to 140 days (840 hours of internship, Kentucky).

Course, Workshop Requirements for Second Level Certification

Appendix K (available from author) shows the course/workshop requirements for second level certification. Shown are the experiences required to progress from the second level to the next which may be a renewal of the previous certificate or to the next certificate title. The data were organized in the same manner as Appendix J.

Only nine states required specific areas or courses to be completed in the professional education area. Sixteen states permitted selection from a designated list or selection of any professional courses. Nine states delegated professional course selection of the full certificate. Thirty-two states had additional requirements which included (a) local plan submission, (b) college/non-college specialized workshops, (c) accomplishment of designated SDE/local competencies, (d) degree requirements (associate or baccalaureate), (e) progression in a university degree program, and (f) any type of approved courses. The total college credits required varied from no credits (states which do not have a second certification level) to 60 semester credits. Clock hours of non-college activity varied from 0 to 135.

Courses, Workshops for Third and Successive Levels of Certification

Appendix L (available from the author) shows the courses and workshops required for third and successive levels of certification. Only twenty-four states had more than two levels. Seventeen states had three certificate levels and seven had four certificate levels. College credits required vary from 0 (Maryland) to baccalaureate degree completion (See Appendix G).

## SUMMARY AND CONCLUSIONS

Teachers of health occupations education have different certification requirements from academic teachers and most vocational teachers except trade and industrial because (a) many teachers are hired without the baccalaureate degree and (b) the content area differs markedly from that of the other teachers. The primary areas of concern in HOE certification are (a) years of occupational experience, (b) recency of such experience, (c) licensure and certification requirements, (d) basic academic skills orientation, (e) pre-service orientation requirements, (f) progressive certification levels and requirements, (g) full certification, and (h) renewal. The purpose of this study was to gather data which would be used in making comparative assessments and gaining new insights in certification.

Data were gathered from requirements as delineated in state department of education certification regulations provided by 53 states and territories. Information was abridged and categorized into (a) pre-employment requirements, (b) work experience requirements, (c) certification requirements, and (d) renewal requirements. From the aforementioned information, comparative tables were developed for (a) occupational experience requirements, (b) recency of work experience, (c) licensure or certification requirements, (d) pre-employment basic skill evaluation pre-employment requirements, (e) new teacher orientation courses/workshops, (f) states with requirements leading to degree completion, (g) HOE certification levels and renewal periods, (h) course/workshop requirements for initial certification, (i) course/workshop requirements for second level certification, (j) course/workshop requirements for third and successive level

certification, and (k) highest level for full certification and renewal requirements.

In all of the aforementioned categories wide variations were found in state department regulations. In no state would the requirements be similar enough to be considered reciprocal. This is in direct contrast with typical academic requirements where reciprocity is common. Trends toward pre-employment requirement standards are indicated.

Full certification standards are becoming more rigorous, although states are slowly moving toward degree requirements for full certification. New concepts in certification are emerging especially in the areas of pre-employment basic skill evaluation requirements, recency of work experience college credit in lieu of designated amounts of occupational experience, salaries based on combination of work experience and college credit, and increased expectations required for full certification.

## RECOMMENDATIONS

The following recommendations evolved from the study:

1. There are few studies which provide comparative certification data. Data in the areas delineated in this study should be gathered and compared periodically in order to observe certification trends.

2. Data gathered in this study should be used as a basis for the development of HOE certification standards similar to the Standards for Excellence in Trade and Industrial Education (USDE, 1985) and those developed by other vocational areas. These recommended national certification standards for health occupations education instructors will enhance the ability of states to give reciprocity.

3. The descriptive data provided in this study should be studied by state departments of education certification committees to develop new concepts in non-degree HOE certification requirements to raise all HOE teachers to the baccalaureate degree level.

4. Cooperative certification agreements among various state departments of education would encourage reciprocity in HOE certification.

## BIBLIOGRAPHY


Brantner, S. T. Ed. (1974). Certification of vocational-technical educators. University Park, PA: Department of Education, The Pennsylvania State University.

Duenk, L. G. (1968). Program guide for vocational industrial education. Blacksburg, VA: Division of Vocational and Technical Education, Virginia Polytechnic Institute and State University.

Duenk, L. G. (1989). Trade and industrial education requirements in the United States and territories. Manuscript submitted for publication, Virginia Polytechnic Institute and State University, Division of Vocational and Technical Education. Available from author.

Hersh, J. H. (1977). A comparison of vocational certification for health occupations and non-health industrial instructions. Unpublished Master's Thesis, The Pennsylvania State University, University Park, PA.

Hux, T. (1980). Does work experience matter? A critique. Journal of Industrial Teacher Education, 17 (3), pp. 22-25.

McQuay, S. A. (1977). Patterns of credentialing/certification of secondary health occupations teachers. Unpublished Master's Thesis, The Pennsylvania State University, University Park, PA.

Miller, A. J. (1982). Certification, a question of safety. Vocational Education, 57 (2), 27-29.

Missouri Department of Secondary and Elementary Education. (1987). Certification for public school teachers. Jefferson City, MO: Author, 38.

Ohio State Board of Education. (1987). Teacher education and certification standards. Columbus, 55, Author.

Roberts, R. (1971). Vocational and practical arts education. New York: Harper and Row, 220.

Sherman, S. Ed. (1983). Education for tomorrow's jobs. Washington, DC: National Academy Press.

United States Department of Education. (1985). Standards for excellence in trade and industrial education. Project No. 300-83-0041. Washington, D.C.: Author.

Utah State Office of Education. (1987). Standards for vocational-technical certificates. Salt Lake City, UT: 1.

Warner, W. (1980). Standards for excellence in trade and industrial education. Washington, DC: United States Department of Education, 72.

Watkins, B. T. (July 26, 1989). National teaching-standards board takes initial steps toward certification sets qualification guidelines. The Chronicle of Higher Education, pp. A15, A18.

Welch, F. G. and Garner, C. W. (1976). Occupational experience, how much is enough? American Vocational Association Journal. Boston. Allyn and Bacon.

# COMMITMENT TO CHANGE

Dorothy M. Witmer

Health Occupations Teacher Education

University of Nebraska-Lincoln

Lincoln, Nebraska

# COMMITMENT TO CHANGE

Dorothy M. Witmer[1]

## INTRODUCTION

In Nebraska, during the month of March 1989, health occupations teachers from community colleges and instructors in health care facilities attended a workshop titled, "AIDS Education Workshop: Updating Your Curriculum." Content of the workshop focused on current knowledge of acquired immunodeficiency syndrome (AIDS) with an emphasis on the psychosocial aspects of caring for patients with AIDS (PWAs). The major objective was to have teachers think about their curricula and school or work policies and changes needed in both areas. A product of the workshops was a set of guidelines for curricular changes and policy formation. The workshop was held in two different geographical locations in order to accommodate as many people as possible. At the workshops participants were asked to participate in a study. Worthen & Sanders (1987) consider this population a haphazard sample; the haphazard sample are those people who actually attend the workshop.

The purposes of the study were to: (a) ascertain short-term and long-term effectiveness of these workshops as a learning strategy, and (b) estimate the value of a written commitment to change as a catalyst for actual change in behavior following AIDS education workshops. The following objectives evolved from the purposes of the study:

---

[1]Dorothy M. Witmer, Ed.D., R.N., C., is Health Occupations Teacher Educator at the University of Nebraska-Lincoln, Lincoln, Nebraska.

1. To assess the knowledge and attitudes health occupations teachers have about human immunodeficiency virus (HIV) infections and AIDS prior to a workshop on AIDS education.

2. To elicit from workshop participants a Commitment To Change which will list behaviors participants will do differently in AIDS education as a result of the content given at the workshop.

3. To conduct a follow-up, one month after the workshop, of the knowledge, attitudes, and opinions that health occupations teachers and workers have about AIDS infections.

4. To conduct a follow-up of the Commitment To Change six months after the workshop.

In theory, a written commitment to change fosters change in behavior as a result of training and continuing education. In this study, the continuing education was the content presented at the workshop. Research evidence indicates that programs are more effective in bringing about change in participants if they are asked, prior to leaving the continuing education program, to specifically identify what they will do differently in the future as a result of attending the program (Dirkx, 1989). According to Worthen and Sanders (1987), changes which occur as a result of this commitment determine the value of the workshop as a learning strategy.

The reasons why changes in behavior of health care teachers and workers are necessary have been discussed in recent reports. A report of the Board of Trustees of the American Medical Association, cited in an unpublished article on legal aspects of AIDS (Kennison, Essay, Rock, & Campbell, 1988), stated: "Responding sensitively, intelligently, and effectively to the growing AIDS crisis is one of the crucial public

health problems facing the nation" (p. 1). Insensitivity has been demonstrated by health care administrators, employees, and students in health occupations programs who refused to care for AIDS patients. Fear continues to exist with health care personnel and students in spite of attendance at educational sessions explaining the facts about AIDS. Workers fear transmission of the disease even though high risk behavior is avoided. The Presidential Commission (1988) reported: "There is still considerable anxiety on the part of health care workers about risk of the workplace exposure and that there is a migration away from those health care settings and practices that may include risk" (p. 23). Risk increases in health care settings when employees and students are exposed to contaminated needle pricks and blood products which contain the HIV virus. However, early studies indicate the risk for occupational transmission in the health care setting is less than one percent (p. 31).

Dr. Constance Wofsy, Director of the AIDS clinic in San Francisco, California and an AIDS educator, explains that health care workers follow the same behavioral pattern as the general public when first hearing about AIDS and its implications. She states in a book by Puckett and Emery (1988):

> Information about AIDS isn't heard with just one go-around. The first go-around leads to fear and denial. The second go-around leads to accepting that maybe this is something I'm going to have to know about. The third go-around leads to a little bit of intellectual curiosity, because it really is kind of an interesting topic. The fourth go-around tends to lead to real interest. The fifth go-around usually puts people in a place

where they finally become a little bit more concerned about the other person than themselves. And you have to go through it all of those times for everyone (p. 114).

It is necessary to continue educational offerings about AIDS if health care workers are to change their behavior.

The workshop, as a format for providing continuing educational sessions, is succinctly but thoroughly described by Cervero (1984). He provided strategies for evaluating workshop implementations and outcomes. Cervero posed a question which this study hopes to answer: "If the workshop helped participants to acquire new knowledge, is that knowledge reflected in their behavior in their natural environment?" (p. 61). In the workshop setting, the environment is typically artificial and temporary, and removed from the circumstances in the natural environment.

Because of the need to provide information about AIDS to health care personnel, teachers and workers at least five times Puckett and Emery (1988), reported that it is useful for planners of similar workshops to learn if a commitment to change hastens the changes in behavior desired in workshop participants.

## METHODS AND PROCEDURES

The following methods were used for this study:

1. Designing a questionnaire to assess knowledge and attitudes about AIDS prior to the workshop. The questionnaire contained a section asking for demographic information. Participants completed the questionnaire on the day of the workshop before it started.

2. Designing an agreement for commitment to change which was signed by workshop participants after the workshop concluded.

3. Mailing the same questionnaire minus the demographic information to workshop participants who agreed to a follow-up mailing one month after the workshop. The results of this questionnaire were used to assess short-term effectiveness of the workshop as a learning strategy; effectiveness was determined by changes in knowledge and attitudes about AIDS.

4. Conducting a telephone follow-up of workshop participants six months after the workshop to determine if behavioral changes listed on the commitment to change document actually occurred; long-term effectiveness of the workshop as a learning strategy.

The procedures in this study were completed in three phases.

Phase I

The first phase included administration of the questionnaire prior to the workshop. The questionnaire had a specific space for the participant to write the last four digits of his or her Social Security number for identification purposes. The total Social Security number for each participant was entered on the registration form so the last four numbers could be easily matched for future mailing of a follow-up questionnaire. Participants were asked to indicate at the end of the questionnaire if they would agree to completing the same questionnaire in one month. Fifty-five people completed the questionnaire; 45 agreed to a follow-up.

Basic format for the questionnaire and the questions eliciting knowledge, attitudes and opinions about AIDS were taken with permission from a survey used extensively by the AIDS training center at the University of Nebraska Medical Center. The categories of information requested included: (a) demographic information, (b) information about

AIDS policies and subject where AIDS is taught, (c) knowledge about how AIDS is transmitted, and (d) opinions and attitudes about AIDS. Reliability of the items on knowledge and attitudes was determined by using Chronbach's alpha. The coefficient was .85 and .87 respectively.

Following the workshop, participants were asked to complete a commitment to change agreement upon which they listed behaviors and actions they would do differently, as a result of the workshop. The agreement asked for a yes or no response to the question asking them to agree to a six month follow-up telephone call. They were asked to provide their telephone number.

Participants received a thorough explanation of the study. The importance and contribution participants made to understanding the nature of change in general and to AIDS education in particular was emphasized. Confidentiality of all information was stressed. Results of the study are being made available to participants who request them. Some workshop participants chose not to participate.

Phase II

One month following the workshops, 45 questionnaires and stamped return envelopes were mailed to the participants who agreed to complete a follow-up questionnaire. The information requested was the same as on the first questionnaire minus the demographic data. Participants were asked to enter the last four digits of their social security number in the space provided. Confidentiality was assured.

Two weeks after the first mailing, postcards were mailed as reminders to return the follow-up questionnaire. Of the 41 (89%) questionnaires returned, 30 (67%) were usable; the remainder had too many missing responses. Respondents also failed to provide the social

security number which identified who was completing the follow-up questionnaire.

Demographic data giving a general profile of the participants were extracted from the questionnaires administered prior to the workshops. Frequencies and percentages were obtained for the responses to all items pertaining to knowledge, attitudes, and opinions about AIDS on both sets of questionnaires (pre and post workshops) and then compared for differences using T test analysis. Specific items were also selected for pre and post-questionnaire assessment. Items from pre and post-questionnaires requiring knowledge about transmission of AIDS by sneezing, shaking hands, needle pricks, using the same drinking glass, using toilet seats, and mosquito bites (often missed questions) were grouped and subjected to T test analysis. Pearson's correlation coefficient was employed to determine a relationship between two items on attitudes about caring for PWAs.

Phase III

Six months after the workshops, workshop participants who signed a commitment to change agreement and agreed to a follow-up were contacted by telephone. The actions of commitment were reviewed with the participant and then each person was asked the same set of questions relating to the following: (a) number of AIDS educational sessions attended prior to the workshop, (b) to what degree were actions completed, (c) what supported or hindered their completion of the actions, (d) did they have any suggestions to bring about the needed changes identified in their actions, and (e) were there any other comments about the workshop or commitment to change agreement. Forty-two people were interviewed in this manner.

## RESULTS AND DISCUSSION

Results are discussed in relation to the objectives of the study.

Objective One: To assess the knowledge and attitudes health occupations teachers and workers have about HIV infections and AIDS prior to a workshop on AIDS education.

An analysis was conducted on 41 questionnaires answered before the workshop began. The questionnaires provided demographic information as well as responses to questions about transmission of the disease and attitudes and opinions about PWAs.

### Profile of Participants

Analysis of the demographic information disclosed the following profile of the 41 participants: female (80%); age 30-39 years (32%); years in health care 16-20 (22%); teaches in a practical nursing program (43%); attended 1-3 prior sessions on AIDS education (60%); and cared for PWAs (60%).

Two males responded to the gender question; six participants did not answer (there were four males in attendance). The ages of participants ranged from 20-29 years to over 60 years. Participants' health care experiences ranged from 1-5 years (1) to more than 36 years (3). Participants other than practical nursing instructors taught in dietetics, child care, radiological technology, surgical technology, dental hygiene, dental laboratory, and AIDS "buddy" programs.

Of the participants, six (15%) attended at least five prior sessions on AIDS education; 35 or 85% of the participants attended less than five sessions. Table 1 provides a breakdown of the responses for this data. When asked how many times they had cared for PWAs, the largest majority (35%) cared for PWAs 1-5 times.

School Policies and Programs that Include AIDS Education

Participants were asked "Does your school have policies governing infectious diseases that will guide in making decisions about students

Table 1

Number and Percentage of Participants Attending Prior Educational Sessions on Aids Education

| Prior Sessions | Number | Percent |
|---|---|---|
| 0 | 8 | 19.5 |
| 1 | 11 | 27.0 |
| 2 | 6 | 15.0 |
| 3 | 8 | 19.5 |
| 4 | 2 | 5.0 |
| 5 | 2 | 5.0 |
| 6 | 4 | 10.0 |
| | 41 | 100.0 |

and clients with AIDS? Twenty-six or 65% said yes; 11 (28%) said no, and 3 (7%) did not answer.

Participants listed 16 subjects in which AIDS education is provided. Table 2 contains a list of these subjects. Infectious diseases as a subject was listed by most of the respondents. The category "other" had six different subjects, each listed by one person.

Knowledge of HIV/AIDS Transmission

One to two people gave incorrect answers, on the transmission of HIV/AIDS. Yes, they believed the AIDS virus is transmitted by being

sneezed on, using the same drinking glass, donating blood, shaking hands, and by sitting on toilet seats. Of greater interest were the 10 missing answers which seem to indicate participants could not make up their minds. When asked if receiving a needle prick from a needle containing AIDS virus is unlikely to transmit the virus, 19 said yes, 18 said no, and four did not answer. It has since been identified this question should be reworded to a more positive statement. The wording of the question may have misled the responder.

Table 2

Subjects Listed by Participants That Include AIDS Education, and Number

| Subject | Number | Percent |
|---|---|---|
| Infectious Diseases | 32 | 80.0 |
| Community Health | 14 | 35.0 |
| Maternal and Child Health | 9 | 22.5 |
| Adult Health | 9 | 22.5 |
| Microbiology | 8 | 20.0 |
| Pathophysiology | 7 | 17.5 |
| Anatomy and Physiology | 5 | 12.5 |
| Mental Health | 5 | 12.5 |
| Medical/Surgical | 2 | 5.0 |
| Fundamentals | 2 | 5.0 |
| Other | 6 | 15.0 |

Note: Respondents selected more than one subject where AIDS education is taught. The other category included six separate subjects: bloodmobile planning, health and wellness, immunology, laboratory sciences, long term care, and general seminars.

There were 11 missing answers to the questions on transmission of the AIDS virus using the same eating tools. Those who did answer said no, which is correct. One person believed heterosexual intercourse would not transmit the disease. One person said no to the possibility of transmission of the AIDS virus when receiving infected blood.

Other questions relating to use of universal precautions, condoms during sex, and who will get AIDS after antibodies develop, received incorrect answers or had missing answers. The total number of respondents answered two questions correctly: "Women who are infected with HIV can transmit the virus to the fetus during pregnancy;" and "Currently, all blood donated for transfusion is tested for the antibody to the AIDS virus." In summarizing, all but the two previous questions had incorrect responses and some questions had many missing responses indicating responders did not want to choose.

Attitudes and Opinions

This part of the questionnaire had a Likert-type scale requesting the participant to choose "strongly agree, agree, disagree, or strongly disagree" as a response to statements that reflected an attitude or opinion.

The attitude questions focused on fear of catching AIDS, comfort with co-workers' skills, comfort with touching PWAs, regard for PWAs as patients in comparison to other patients, a choice if allowed to work or not work with PWAs, and comfort teaching about AIDS.

Of the 39 who responded to being asked about a fear of catching AIDS when providing services, eight agreed they were fearful. Comfort with co-workers' skills showed 23 who agreed. Of particular interest were the responses about regarding PWAs as they do other patients but

if given the choice would they choose to work with PWAs: seven disagreed that they regarded PWAs as they did other patients, 17 agreed that they did, and 17 strongly agreed they did. On the choice between working with PWAs or not working with them, five strongly disagreed, 13 disagreed, 16 agreed, and six strongly agreed. These responses show a tendency to regard a PWA the same as other patients but when offered a choice to provide services or not, there is less desire to provide services.

Participants responses, when asked if they were comfortable touching PWAs showed two strongly disagreed, five disagreed, 16 agreed, and 17 strongly agreed. These responses are more consistent with the question about choice to work with PWAs than with the question of regard. A Pearson correlation coefficient was employed to establish a relationship between the regard for PWAs and the choice to work with PWAs. It would be reasonable to expect if a health care worker regarded PWAs as they do other patients, then their choice to work with PWAs would be related. The Pearson correlation coefficient showed no relationship.

Objective 2: To elicit from workshop participants a Commitment To Change which will list behaviors participants will do differently in AIDS education as a result of the content given at the workshop.

At the conclusion of the workshop, participants completed a commitment to change agreement. They were asked to list the changes needed in one column and in another column write what actions they would take to bring about the changes. The commitment to change agreement requested actions for curricular change. AIDS policies were

also a major objective of the workshop if participants did not have policies in their programs.

Fifty people wrote on the commitment to change agreement; however, 42 agreed to a follow-up in 6 months. A total of 90 actions were listed. Table 3 lists the commitments by category (curriculum, policy, other) and the number of commitments.

Table 3

Commitments to Actions and Category of Commitment N = 42

| Category of Commitment to Action | Number of Actions |
|---|---|
| Curriculum | 60 |
| Policy | 17 |
| Other | 13 |
| | 90 |

Objective Three: To conduct a follow-up one month after the workshop, of the knowledge, attitudes, and opinions that health occupations teachers and workers have about AIDS infections.

Thirty post-workshop questionnaires were returned and submitted for analysis to determine correct responses and comparison to the responses from the pre-workshop questionnaires. The follow-up questionnaires asked the same questions in the same format as the pre-workshop questionnaires. A T test was utilized to determine if there was an overall difference between the responses of the pre-workshop and post-workshop questionnaires. There was no overall difference noted; however, there were obvious differences in the

percentages of responses to particular items. There was an increase in the percentage of correct responses in 18 of the 24 questions on knowledge about AIDS. There was a decrease in number of correct responses on six items. Three of the items were answered correctly by all respondents: being sneezed on, shaking hands, and mosquito bites. In the category of attitudes, there was a decrease in percentage of responses indicating fear of catching AIDS. In other words, percentage of responders indicated less fear in getting AIDS when providing services. Comfort with co-workers' skills and comfort with teaching about AIDS increased. Touching AIDS patients and regarding PWAs as they would other patients stayed the same; choosing to work with PWAs decreased.

The responses to items asking about transmission of the AIDS virus by being sneezed on, needle pricks, shaking hands, and sitting on toilet seats were grouped from the pre and post questionnaires and subjected to T test analysis. There was a highly significant positive difference in the post workshop responses. Table 4 shows the results of the T test.

Table 4

Comparison of Pre and Post Workshop Responses to Questions on Knowledge of Transmission of AIDS Virus by Being Sneezed on, Needle Pricks, Shaking Hands, and Sitting on Toilet Seats

| | n | Mean | T Value | 2-Tail Prob.* |
|---|---|---|---|---|
| Group 1 (Pre-Workshop) | 37 | 1.4910 | | |
| | | | -4.17 | .000 |
| Group 2 (Post-Workshop) | 28 | 1.7619 | | |

*P = .05

67

Agreement with reporting AIDS patients to the health department decreased but reporting HIV positive people to the health department stayed the same. It is difficult to know how these responses would look if the same number of people responded to pre and post-questionnaires. Attitude changes seem to have occurred in fear about catching AIDS but did not change positively when choosing to care for PWAs.

Objective 4: To conduct a follow-up of the Commitment to Change six months after the workshop.

It became important to the study to learn how many AIDS educational sessions people who signed a commitment to change attended prior to the workshops as a way of measuring whether the commitment to change had some catalytic influence in bringing about the changes participants said they would make. Dr. Wofsy, cited in Puckett & Emery (1988), stated it takes at least five educational sessions to make changes.

Table 5

Commitment to Actions, Category of Commitment, and Progress of the Actions N = 42

| Category of Commitment to | Number of Actions | Actions Completed | | Actions in Progress | | Actions Not Completed | |
|---|---|---|---|---|---|---|---|
| | | n | % | n | % | n | % |
| Curriculum | 50 | 43 | 71.7 | 8 | 13.3 | 9 | 15.0 |
| Policy | 17 | 5 | 29.4 | 0 | ---- | 12 | 70.6 |
| Other | 13 | 7 | 53.8 | 3 | 23.1 | 3 | 23.1 |
| | 90 | 55 | 61.1 | 11 | 12.2 | 24 | 26.7 |

Each of the 42 participants were contacted by telephone for an interview. The interview focused on the progress of the actions stated on the agreement. Three of the participants were not actively working as teachers. The commitments of these people are listed under "other" in the table. Table 5 shows the categories of commitments and progress made in completing them.

Table 6 shows the number of AIDS educational sessions attended by each participant and the progress made on completing the actions stated

Table 6

Prior Number of AIDS Educational Sessions Attended and Progress Toward Commitments to Action

| Prior Number of AIDS Ed. Sessions | Number of Partici-pants | Number of Actions | Actions Completed | | Actions in Progress | | Actions Not Completed | |
|---|---|---|---|---|---|---|---|---|
| | | | n | % | n | % | n | % |
| None | 12 | 23 | 15 | 65.2 | 4 | 17.4 | 4 | 17.4 |
| 1 | 8 | 15 | 10 | 66.7 | 2 | 13.3 | 3 | 20.0 |
| 2 | 8 | 19 | 8 | 42.11 | 7 | 36.8 | 4 | 21.1 |
| 3 | 5 | 12 | 11 | 91.67 | 1 | 8.3 | --- | --- |
| 4 | 3 | 7 | 4 | 57.1 | 3 | 42.86 | --- | --- |
| 5 | 1 | 3 | 2 | 66.7 | 1 | 33.3 | --- | --- |
| 6+ | 5 | 11 | 5 | 45.5 | 6 | 54.5 | --- | --- |
| | 42 | 90 | 55 | 61.1 | 24 | 26.7 | 11 | 12.2 |

on the Commitment To Change. Table 7 indicates the number of AIDS educational sessions attended and the categories of commitment.

Examples of actions committed in the category of curriculum are (a) review course materials to assure inclusion of facts about AIDS virus, (b) present in-service educational sessions on the AIDS virus and use of universal precautions, (c) incorporate the physical and psychosocial aspects of PWAs in educational material, (d) sponsor in-service education focusing on pyschosocial aspects of PWAs, (e) acquire updated material for inclusion of HIV/AIDS in course content; include more in-depth material in infection control.

Table 7

Prior Number of AIDS Educational Sessions and Category of Commitment

| Prior Number of Educa. Sessions | Number of Partici-pants | Number of Actions | Category of Curriculum n | Commitment to Policy n | Action Other n |
|---|---|---|---|---|---|
| None | 12 | 23 | 14 | 4 | 5 |
| 1 | 8 | 15 | 13 | 0 | 2 |
| 2 | 8 | 19 | 12 | 3 | 4 |
| 3 | 5 | 12 | 9 | 2 | 1 |
| 4 | 3 | 7 | 5 | 2 | 0 |
| 5 | 1 | 3 | 2 | 0 | 1 |
| 6+ | 5 | 11 | 5 | 6 | 0 |
| | 42 | 90 | 60 | 17 | 13 |

Examples of actions related to policy formation are: meet with advisory committee and draft policies for radiologic technology; contact appropriate staff to establish sexually transmitted policies

for students; meet with staff advisory council to draft policy based on facts and knowledge; develop survey regarding policies and send out to clinical instructors and then follow-up on them.

Examples of the "other" category are (a) take opportunities for education of co-workers to encourage attitude changes regarding PWAs, emphasize importance to administrators; (b) teach my children about AIDS; and (c) use personal speaking opportunities to increase understanding of AIDS and avoid saying "victim;" replace the word with PWAs.

It was noted that actions which involved students and activities were usually accomplished. Actions which required administrative intervention were delayed. It was recommended more administrators should be in attendance when policy formation was inevitable.

Barriers. The major barrier was time, especially in the writing of new curriculum or when other personnel had to be involved.

Comments About The Commitment To Change Agreement. At least 12 people commented on the agreement. All felt the follow-up was a good idea: "Helped a lot;" "Kept the commitment fresh in my mind;" "A good reminder." One person said it was good to be able to report she had accomplished her goals.

## CONCLUSIONS

The following conclusions are based on the results of this study:

1. The use of a questionnaire to determine knowledge, attitudes, and opinions about AIDS and PWAs is an effective tool; however, for the purposes of this study, a higher number of follow-up responders would have given the comparison between pre and post-workshop responses more

meaning and significance in determining short-term effectiveness of the workshop as a learning strategy.

2. There was no overall significant difference in pre and post-workshop responses to the questionnaire.

3. There were increases in correct responses to 28 of the knowledge items. There was a highly significant positive difference in the correct responses to often missed items.

4. There were decreases in percentages of correct answers for six items about knowledge on the post-questionnaire.

5. There were inconsistencies in responses on pre-workshop and post-workshop questionnaires for two items about attitude toward PWAs. Respondents indicated they regard PWAs as they do other patients but when given the choice they would be less inclined to work with PWAs.

6. Using a commitment to change agreement encouraged participants to complete the actions written on the agreement.

7. The majority of participants who signed commitments and agreed to a follow-up telephone call six months later completed or were progressing in completion of their actions. A large majority had attended less than five educational sessions on AIDS.

8. The commitment to change agreement served as a catalyst to change, especially when participants agreed to a follow-up of actions to which they committed in writing.

## RECOMMENDATIONS

The following recommendations are based on the results of this study:

1. Questionnaires utilized to assess knowledge, attitudes, and opinions about AIDS and PWAs should have positively stated items.

2. When using a questionnaire as a follow-up mailing, pre-code the questionnaire with an identifying number; do not depend on the responder to provide identifying information.

3. AIDS educational sessions should include PWAs as presenters. PWAs bring the reality of the disease to the instructor.

4. Continuing educational sessions on AIDS are necessary to keep health occupations instructors current. The number of people contracting AIDS continues to increase. Health care workers must be ready to render services.

5. Students in health occupations educational programs must have the facts about AIDS and be provided this information many times in all relevant subjects. Students must learn how to protect themselves and be willing to provide services to PWAs.

6. When providing educational sessions, health occupations instructors should consider using written commitments to change when changes in behavior are indicated. There should also be a follow-up of the commitments to learn if the actions committed did take place. People making commitments in this study appreciated the follow-up call.

## REFERENCES


Cervero, R. M. (1984). Evaluating workshop implementation and outcomes. In T. J. Sork (Ed.), Designing and implementing effective workshops (pp. 55-67). San Francisco: Jossey-Bass.

Dirkx, J. M. (1989). Commitment to change strategy for evaluating effectiveness of training and continuing education programs. Unpublished manuscript.

Kennison, P. W., Essay, L., Rock, K. & Campbell. (1988). AIDS: Legal duties and dilemmas. Paper presented at the Nebraska State Health Department workshop: AIDS in the healthcare setting.

Presidential Commission of the Human Immunodeficiency Virus Epidemic (1988). Report of the presidential commission on the human immunodeficiency virus epidemic.

Puckett, S. B. & Emery, A. R. (1988). Managing AIDS in the workplace. Menlo Park, CA: Addison-Wesley.

Worthen, B. R. & Sanders, J. R. (1987). Educational evaluation. New York: Longman.

# AN OPEN SYSTEM PLANNING MODEL

Vivian Klaus

Assistant Dean

Health Sciences

Kirkwood Community College

Cedar Rapids, Iowa 52406

# AN OPEN SYSTEM PLANNING MODEL

Vivian Klaus

A maze of health care professionals, specialists, technicians, assistants, and aides are intertwined in the health care system. Educational institutions must sort through the ever changing conditions to provide efficient and economical education for the diversity and changing needs of the system and employers. An open system model developed by Katz and Kahn 1966, may serve as one type of model to bring the maze into a planning perspective (Smith & Kaluzny 1975). The open system takes its energy from the environment as "inputs" (students) and treats these as "through puts" (education) in such a manner as that will lead to "outputs" (personnel). The output (personnel) are then handled in some way by the environment to produce new inputs. This process causes the system (through put) to adapt and adjust, preventing stagnation. An open system has a tendency to move toward greater complexity. Yet providing health care manpower for both metropolitan and rural areas with shrinking educational funds and urgent health manpower shortages is no less complex.

Utilizing the open system approach the following model may provide one possible planning model for community colleges. Health care has changed, delivery is continuing to change, we are facing shortages of health care personnel and personnel are being utilized in different ways. Small rural hospitals and agencies with low patient census can not afford entry level specialization such as EKG technicians,

---

Vivian Klaus, Assistant Dean, Health Sciences Department, Kirkwood Community College.

## CONCEPT OF MODEL

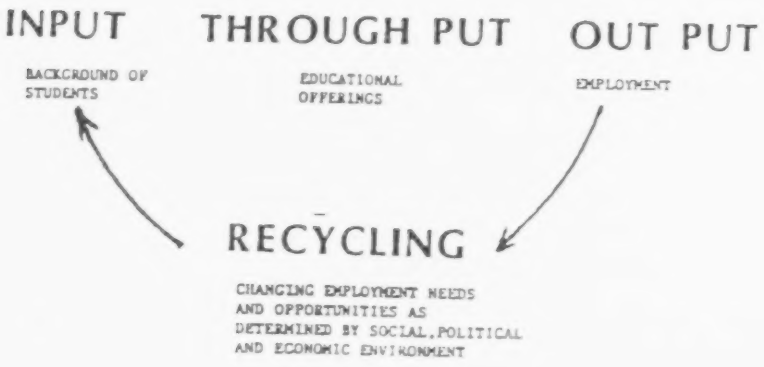


Figure 1

phelbotomists, pulmonary function technicians, etc. Cross-training is essential to these employers to serve their communities. The model is student/employer driven within the legal limits of licensures, certifications, etc. Historically health careers and professions have been possessive and controlling of functions, and lock step in educational preparation. Some developed multi-health worker programs have predetermined who will be cross-trained for what functions. These conditions and controls are not likely to change to achieve greater flexibility in delivering health care services. The model presented does not attempt to change any of the legal structures that exist; it does however present some possibilities for flexibility.

The model should serve a diverse student population as well as the diversity of employer needs. The educational process, or through put component, becomes the reacting component to serve both students and employers, NOT a dictatorial force. Possibly for too long, education has viewed their potential students as only entering from the general public sector and has prepared their students with diplomas and degrees for only the typical career skills, saying to employers, "here is what we will provide you."

# PLANNING MODEL

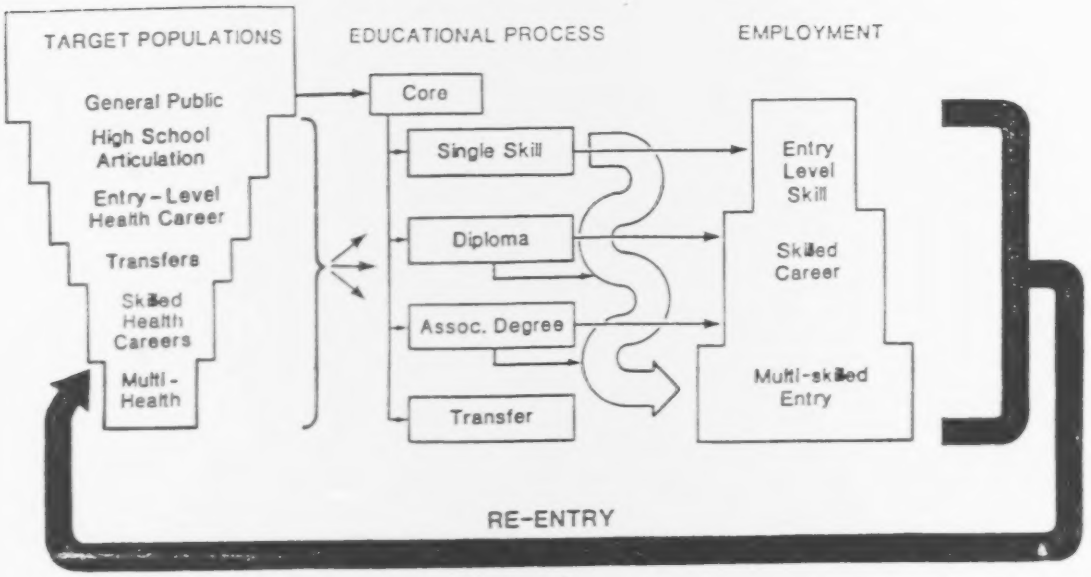


Figure 2

In figure 2, the input population or potential students, at this point in time are: **general public**; those without previous health careers, **high school articulation** graduates; these are specific students who have completed a specific health articulated program, **entry level health careers**; these people have some type of training that would be equivalent to the core competencies, possibly nursing assistants, **transfer students**; transfers from other health programs, either external or internal transfers, **skilled health careers**; may be either diploma or degree graduates who re-enter with a new career choice or advanced placement within their career (practical nursing into associate degree nursing or respiratory technician into respiratory therapy) or to obtain a single skill to add to their career (respiratory therapy adding EKG skill); and last **multi-health**; the

person who continues to add additional single skills, diplomas, or degrees.

## EDUCATIONAL PROCESS

As the students from the input phase enter the through put on educational process in Figure 2, they find an educational design that includes cored health courses, single skill courses, and the typical career diplomas and associate degrees. Since four year transfer is a possibility for graduates, we have included that option as part of the educational through put.

The health core encompasses three courses, developed by use of career competencies (Figure 3) . The Introduction to Health course is a basic course about the health care system, the evolution of careers and their functions. We believe this course is basic to any health career. The health care courses involve skills basic to those careers having to do with direct patient care (not including careers such as dental laboratory technician or medical record technicians). In attempting to avoid unnecessary requirements for students the decision was made to break the health care course into two courses; Health Care I, having to do with basic skills for any health career directly dealing with patients and Health Care II, basic skills relating to hospital patients (not including such careers as dental assisting or medical assisting).

The next level, single skills, is short term career courses; e.g., a short series of courses that lead to a single skill. These single skill areas may require prerequisite courses, however, the intent is to provide either a limited employable skill or an add on skill for diploma or degree students or graduates (a multi-health care worker

soncept). The model carefully avoids dictating which careers enter the multi-area. Student entry is based solely on prerequisites.

## HEALTH CORE REQUIREMENTS

| COURSES | PROGRAMS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | HIGH SCHOOL | NURSING | MEDICAL ASST. | OCCUPATIONAL THERAPY ASST | RESPIRATORY THERAPY | EEG | DENTAL ASST. | MEDICAL RECORD | DENTAL LAB TECH |
| INTRODUCTION TO HEALTH<br>32 Clock hours | X | X | X | X | X | X | X | X | X |
| HEALTH CARE I<br>8 clock hours lecture<br>32 clock hours lab | X | X | X | X | X | X | X | | |
| HEALTH CARE II<br>8 clock hours lecture<br>16 clock hours lab | X | X | X | X | X | X | | | |

Figure 3

The diploma and degree levels are the typically recognized health careers: diplomas in dental assisting, medical assisting, and practical nursing; degrees in dental lab technology, occupational therapy assisting, respiratory therapy, medical record technology, EEG, and nursing.

Transfer in the educational process generally refers to four year transfer and therefore not an option at the community college level; however, transfer is mentioned since four year transfer is an option to the incoming population. Although transfer can also refer to advanced standing at other two year institutions, e.g., a high school articulating student may be eligible for advanced standing at other community colleges.

### EMPLOYMENT

Students entering the employment or output phase in Figure 2, have completed one or more segments of the educational process. The employment area is viewed as building blocks of skills. The entry

level being single skill jobs or aide level positions. The skilled career level as prepared for positions typically defined and recognized from diploma and degree programs by accrediting agencies. The multi-skilled level must include more than one area from the educational process.

Employed graduates in the output phase are influenced by their employers toward change and both the employers and graduates are influenced by the social, political, and economical environment. This influence has an impact on additional learning causing changes in the input process for which the educational process must adjust and adapt.

MATRICULATION

To provide some examples of how students may move through the process, let us say Student X enters from the general public with an undecided career choice. This student would be advised to complete the three core courses, then may choose a single skill option for either further exploration or employment, a specific diploma, or degree. While Student Y from the general public with a specific career choice, such as, dental lab technology would complete the Intro to Health course and move directly to the two-year degree program. Student Z, an articulating high school student has already completed all three core courses in the first semester high school program and therefore, would enter based on their career choice of single skill, diploma, or degree. Those high school students completing the second semester high school program may also advance place in specific program courses that have equivalent competencies.

Identifying prerequisite core course requirements and competencies becomes essential in advance placing the various populations to assure

standards and to facilitate re-entry. Trust in one's colleagues and counterpart also becomes essential, e.g., the nursing faculty must trust that the practical nurse graduate from College X is adequately prepared to enter their associate degree program at the degree level. Trust among the institution's faculty teaching the core courses and possibly the faculty teaching the high school program is also critical to the concept of advanced standing (Long, Warmbrod, Faddis, Lerner 1986). Frequently employers are more trusting of educational preparation than educators are among themselves. After building a sense of trust among faculty, program requirements in general education, as well as health courses can be developed and illustrated as in Figure 4 without drastic disruption to program content.

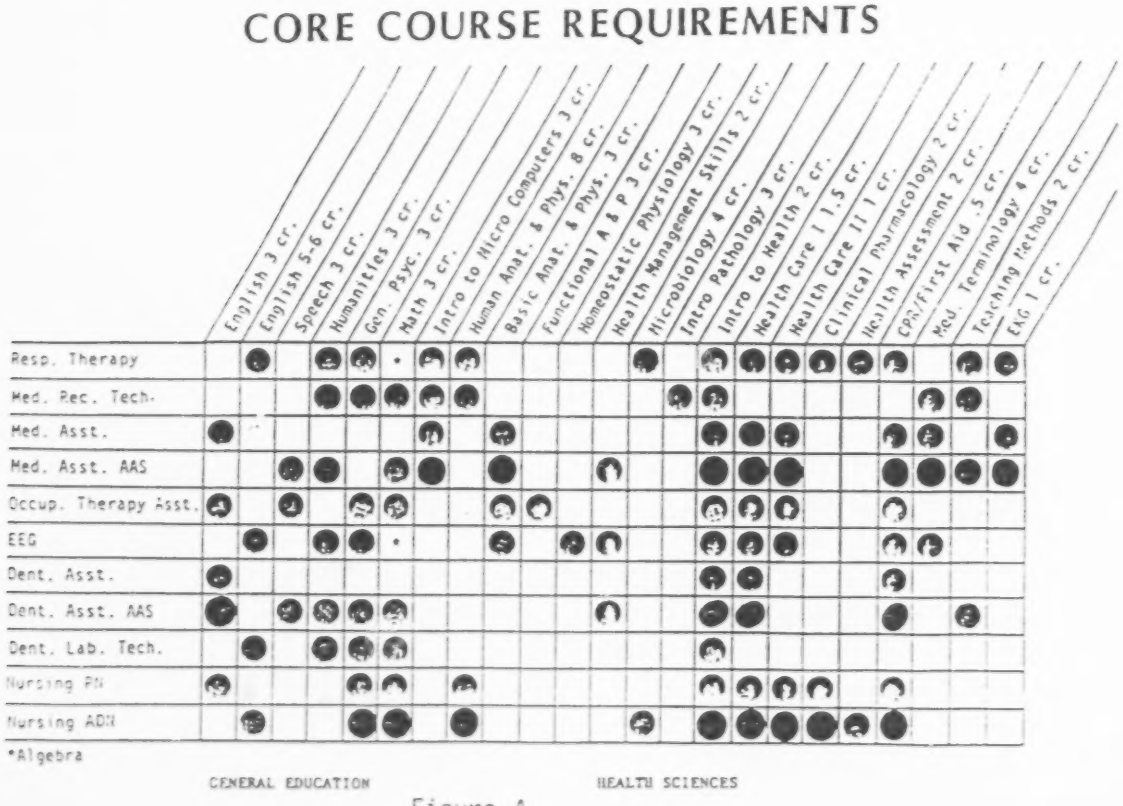


Figure 4

## SUMMARY

Goals in developing this model were to:

1. Provide greater opportunities for students and employers.
2. Reduce duplication for students for career change, advancement, and add-on learning.
3. Provide greater flexibility to serve employer needs.
4. Improve student retention and enhance opportunities for part-time students.
5. Increase enrollments without excessive budgetary increases.
6. Reduce the threat of faculty retrenchment.

Implementation of the model has only begun and by its nature is subject to constant change. The model does not detail the considerations of implementation that exist in all educational processes; e.g., budget, facility, scheduling, staffing, and support services which must be addressed. Scheduling became an issue if student retention was to be improved (Figure 5). In an internal study of student drops it was found that most students dropped within the first four to six weeks of their career program, frequently due to changing their health career choice. Therefore, the core courses are scheduled the first four weeks of each semester, prior to technical courses. This permits students to switch programs within the first four weeks, at least on a space available basis. Additional sections of the core courses are offered evenings, Saturdays, and throughout the institution's seven county area via telecommunications for part-time students exploring health career options which should improve health career choices prior to program entry.

# HEALTH CORE SCHEDULING
## (16 week semester)

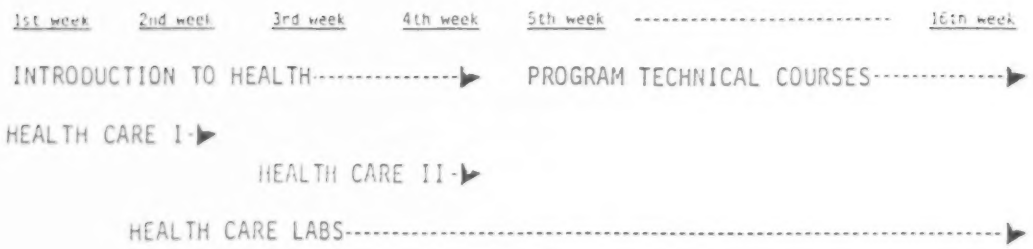


Figure 5

As with all careers, health program enrollments and career manpower needs fluctuate, the core concept and the single skill areas reduce the threat of faculty retrenchment. Almost all health faculty are capable of teaching the Introduction to Health course and many are qualified with additional training to teach other core and single skill areas. One of the most critical needs for successful implementation is early faculty involvement from the beginning (Long, Warmbrod, Faddis, Lerner 1986). Possibly first, in brainstorming the issues and changes in the health care system and how the educational process would be affected, and second, involvement in developing the core competencies and single skill areas. All health programs in an institution should be involved to generate ownership and establish relationships based on mutual respect and trust.

To maximize curriculum and diverse offerings, facilities must be considered. Typically, most health programs occupy a lab facility specific to their needs, however, consideration should be given to developing facilities and supplies by competency rather than program.

Budgetary considerations should be minimal depending on the extent of offerings. Colleges with multiple health programs will most likely find the health core content already exists within their programs. They will further find single skill areas existing within individual programs, especially in allied health programs. The process may be in restructuring courses to provide opportunities for other students to enroll in these content areas. It may or may not be necessary to offer separate or multiple sections of courses. In some cases, a few more students in a single skill course can be viewed as filling a course section in a program that has experienced a large attrition of full-time students. The process may serve to supplement enrollments rather than increasing budgets.

In addition to achieving the original goals other benefits of the planning model and process were as follows:

1. A cohesiveness of department faculty across all program areas.
2. Enhanced communications and interaction between students in different programs.
3. Improved career awareness and career choice of entering students.
4. Increased part-time enrollments.
5. Approximately 73% of the high school completers select health careers and 35% articulate to a health program immediately following high school.
6. Graduate re-entry without repetition.

## REFERENCES

Long, J. P., Warmbrod, C. P., Faddis, C. R., and Lerner, M. J. (1986). Avenues for articulation: Coordinating secondary and postsecondary programs (Research and Development Series No. 259). Columbus: Ohio State University, National Center for Research in Vocational Education.

Smith, David, and Kaluzny, Arnold. (1975). The White labyrinth, understanding the organization of health care. California: McCutchan Publishing Corporation.

# FACTORS RELATED TO THE COMPLETION OF COMMUNITY COLLEGE ALLIED HEALTH PROGRAMS

Chet Rzonca

Associate Professor and Chair

Foundations, Postsecondary, and Continuing Education

The University of Iowa

Iowa City, Iowa

# FACTORS RELATED TO THE COMPLETION OF COMMUNITY COLLEGE ALLIED HEALTH PROGRAMS

Chet Rzonca

## INTRODUCTION

Health Occupations Education as offered in the public schools (K-12) and two-year postsecondary institutions is commonly accepted as being that part of the educational system that has as its primary purpose the preparation of individuals for employment in the health care delivery system. Primary purpose is used because health occupations education programs also provide general education as part of required basic skills and related coursework in addition to specific occupational preparation. Indeed these subjects are mutually supporting.

This relationship fits in nicely with Federal legislation which defines vocational education as subjects and programs designed to provide the opportunity for students to explore, prepare, and progress in the occupation of their choice. Rupert Evans (1971) in Foundations of Vocational Education further identifies the objectives of "vocational" health occupations education program as (a) meeting the manpower needs of society; (b) increasing the options available to each student, and (c) serving as motivating force to enhance all types of learning. While the objective of meeting manpower needs has historically been the earliest and most important, changes in societal values in terms of people being able to progress in an occupation,

---

Chet Rzonca, Associate Professor and Chair, Foundations, Postsecondary and Continuing Education, The University of Iowa.

obtain job satisfaction, as well as participate in continuing education programs -- have made the last two goals, provided a motivating force for all types of learning and increase the options of the individual --take on increased importance. While it is important for institutions which provide health occupations education programs to measure their success to a great extent in terms of the number of students which pass examinations and obtain employment, it is increasingly important that the institutions provide opportunities for career decision making and instill positive values towards continuing education and toward the work place.

Over the decades, our collective belief in the importance of education has greatly changed society's vision of an adequate education. In 1890 less than four percent of the high school age population was enrolled in secondary schools; the percentage of fourteen to seventeen year-olds in school had reached 26 percent by 1920 and 47 percent by 1930 (Lazerson and Grubb, 1974). According to the Bureau of Census, the percentage of 18 and 19 year olds who had completed high school had reached 74.6 percent in 1985. Between 1970 and 1984, the segment of the labor force age 18 to 64 with at least one year of college increased from 26 to 41 percent. The portion of the labor force with four or more years of college increased from 13 to 22 percent. This increased percentage reflects the retirement of older workers with less formal education and the entry into the labor force of persons with a higher level of formal education (U.S. Department of Labor, 1986).

We have been blessed by the universal belief that education is good for all of our citizens. Initially this belief was extolled as

ending with a high school diploma but more recently that people need schooling through either community colleges and/or universities. Postsecondary preparation also emphasizes the life long learning concept. In terms of the number of people educated on a percentage basis and the number of institutions that have been developed in both quantity and variety, the United States stands alone in its commitment to universal education. We have comprehensive high schools, technical high schools, alternate schools, secondary vocational schools, and postsecondary vocational/technical schools, community colleges, junior colleges, four year colleges, and universities. These institutions tend to be both publicly and privately sponsored. Perhaps a better term for private institutions is independent, in the absence of direct state control, although with the variety of financial aid grants provided by public monies a growing portion of the private institution budget is also dependent on some form of either direct or indirect government student aid for its operating resources. As if these conventional institutions with the array of programs they provide are not sufficient, we can recall the advertisement on match book covers which offer a variety of correspondence opportunities for people who seek additional non-traditional ways to earn occupational preparation and/or college credits.

The need for more occupational and educational preparation, the need for the best expenditure of resources to provide for such additional education, and most importantly the quality of student/work life encourages the study of factors related to student persistence. The goal of this study was to identify factors relating to persistence in selected allied health program at community college level.

## STUDENT ATTRITION

Student attrition is a widespread problem that has remained remarkably constant in pattern and percentage, for more than seventy years. Summerskill (1962), reporting on attrition studies from 1913 to 1962, found that only 40 percent of entering freshmen graduate within a four-year period. A nationwide study (Iffert, 1957) found that 40 percent of an entering class never graduate. Astin (1972), Bayer (1973), and Cope, Pailthorp, Trapp, Skaling, and Hewitt (1971) put the national figures closer to 50 percent. A ten year follow-up study (Eckland, 1964) at the University of Illinois found that 69 percent graduate from some four year programs, though not necessarily from the program of initial enrollment.

Community colleges show similar patterns of attrition. Recent studies indicate that, while about 55 percent of students in public two-year institutions return for a second year, only 41 percent graduate after three years (Beal and Noel, 1979).

This research was guided by the definition of attrition that includes anyone leaving a college at which they were registered. The converse of attrition is persistence which includes anyone remaining enrolled at a college at which they registered. Since this research is program specific, attrition will be defined as a student leaving a program of study in which they were originally enrolled.

The task of reducing attrition in the community college is formidable since it involves complex characteristics of both students and the institution. Indeed, some reports suggest that community colleges attract students with attributes associated with attrition (Astin, 1977; Pantages and Creedon, 1978). Open door admission

policies provide little incentive to administer entrance and placement tests which would identify those needing remedial instruction prior to attempting college level work. While relatively low tuition provides access it may lead to less of a commitment to complete the entire college curriculum. The career education component may encourage students to leave as soon as they obtain a marketable skill, whether or not they have completed a degree or program. Even strong vocational goals, often found in community college students and usually associated with persistence, may not lead to persistence for all students. One study (Simpson, Baker, and Mellinger, 1980) found that among students earning poor grades, those with higher vocational orientation had higher attrition rates than those with lower vocational orientation. Community colleges also have a larger number of academically disadvantaged students who are at increased risk of early attrition (Rounds, 1984). Whatever the reasons, student attrition is a significant problem at the community college level.

## METHODOLOGY

The purpose of this study was to examine the possible relationships between student attributes, attitudes, and abilities, assessed by the ASSET Educational Planning Form (American College Testing Programs, 1986) and the nature of student persistance in Allied Health Programs at a selected community college. This research was an ex-post facto study, with data collected prior to enrollment and during matriculation within the 1985-86 academic year, with the exception of students in the Electroencephalographic program where enrollment data were collected for one year, starting December 1984. Preenrollment characteristics identified on the ASSET Educational Planning Form, and

college records of grade point average and enrollment data, provided the independent variables. The dependent variable in this research was persistence in calendar days in an allied health program. Each student was studied for enrollment status for a period of one year from the time of initial enrollment. The ASSET assessment was administered by the same person for all students in the sample. The purposes of the instrument were explained to participants and each question on the background plans and summary section was read to the participants. The skill assessment tests were administered after completion of the background plans and summary section. The sample used in this study was 187 students who enrolled in an allied health program. Table 1 identifies the programs represented, the number of students initially enrolled in each program, and the number of students who persisted for the year of the study.

The sample for this study was chosen for the following reasons. First, it allowed the utilization of an untapped data base related to student retention. Second, because one of the researchers was employed as a program coordinator at the college, the cooperation from colleagues in collecting crucial enrollment data was facilitated.

Instrument

In 1982, The American College Testing Program (ACT) designed the ASSET (Assessment of Skills for Successful Entry and Transfer) program as a planning and advising tool for students entering two-year institutions. The ASSET program combines measures of academic skills with educational planning information to help students identify their strengths and weaknesses and "enables counselors and advisers to provide new students with crucial early guidance in a variety of areas

Table 1

Sample Size and Persistence by Program

| Initial Sample | Size | Persisted for the Year of Data Collection |
|---|---|---|
| Dental Assisting | 46 | 24 |
| Dental Lab Technology | 11 | 9 |
| Electroencephalographic | 10 | 5 |
| Medical Assisting | 38 | 32 |
| Medical Record Technology | 17 | 6 |
| Orthopedic Physician Assistant | 12 | 11 |
| Occupational Therapy Assistant | 31 | 23 |
| Respiratory Therapy | 22 | 15 |
| TOTALS | 187 | 125 |

that can affect retention" (American College Testing Program, 1986, p. 1).

The ASSET basic skills battery was developed from existing instruments used in the ACT Career Planning Program. The validity and reliability of the ASSET battery has been tested and reported in the ASSET Technical Manual (ACT, 1986). The ability of the ASSET battery to predict academic performance in selected courses continues to be studied by the American College Testing Program and was reported by Nielsen (1986). Earlier researchers have not investigated the predictive ability of the variables collected on the entire ASSET

Table 2

Variables Used in the Study

| Obtained from the ASSET Planning Form | Obtained from College Records |
|---|---|
| Age, Sex, Veteran Status | Elapsed time between ASSET test date and enrollment |
| Ethnic Background | |
| Type of High School Certificate | |
| Previous College Credit | Credit hours attempted |
| Highest Degree Earned | Credit hours earned |
| Last High School English Grade | |
| Last High School Mathematics Grade | First Quarter Grade Point Ave |
| Last High School Science Grade | Cumulative Grade Point Ave. |
| Career Goal | |
| Enrolled in Program of First Choice | |
| Certainty of Career Goal | Type of Withdrawal |
| Certainty of Program Choice | |
| Planned Hours of Employment | Credit hours taken first quarter |
| Amount of Education Planned | |
| Plans to Transfer | |
| - Need Help With; | |
| Financing Education, Finding Employment, Day Care, Physical Disability, Health Problems, Commuter Information, Choosing a Major/Career, Reading Skills, Study Skills, Writing Skills, Math Skills, Work Experience Credit, Other | Number of days enrolled in program |
| Plan to Earn Certificate | |
| Language Usage Score | |
| Reading Skills Score | |
| Numerical Skills Score | |

Educational Planning Form. Data on the educational background plans, needs and abilities of students, provided on the ASSET planning form, represent a consolidated data base for attrition research. Table 2 identifies data available from the ASSET Educational Planning Form.

Data Analysis: Multiple Regression Technique

A series of multiple regression equations were conducted using the Statistical Package for the Social Sciences (SPSS-X). Initially, all

independent variables were used to determine the percentage of variance in persistence using a continuous measure; i.e., days enrolled in the program. After an assessment of initial questions, a second set of equations were developed eliminating variables measuring credit hours attempted, and earned, and cumulative grade point average. Although these measures showed high correlation to persistence, they were considered covariates of persistence and of little utility in an early prediction model.

A third set of equations were developed after partitioning the sample into students in one-year and two-year programs. Past research had suggested that differences may exist between various programs. Although the sample size was not sufficient for a breakdown by individual programs, it was adequate for partitioning by program length. The third set of equations are presented in this article.

A stepwise multiple regression procedure was employed using an empirical method for selecting the variables for entry into the equation. Probability for entry of a variable into the equation was set at the ($p < .05$) significance level and tolerance was set at the (.001) level. A stepwise method using these criteria, considers all variables for entry, but enters only those variables that make a significant contribution to prediction and do not demonstrate collinearity with other variables in the equation. A listwise method was employed for deletion of missing data. The listwise method deletes the entire case for consideration if any data are missing for that case. This provides a more reliable correlation matrix for use in multiple regression procedures.

In the following discussion, a number of terms and symbols are used that merit explanation at this point. Multiple R, represented by the symbol R, is an expression of the multiple correlation of the combined independent variables with the criterion variable. $R^2$, represented by the symbol $R^2$, is the square of the multiple R and is an expression of the fraction of the explained variance in the criterion measure. In order to maintain the readability of the prediction tables, multiple R was not included. It may be calculated by taking the square root of the $R^2$ value. Adjusted $R^2$ is the $R^2$ value adjusted for the sample size and number of variables in the equation, since small sample sizes tend to inflate $R^2$. The ratio of explained variance to error variance is represented by the symbol F. The F ratio is compared to the F distribution when testing its level of significance.

## SUMMARY OF FINDINGS

The findings are summarized in Tables 3 and 4. Table 3 identifies the relationship of both first quarter grade point average and the preenrollment variables with the dependent measure of persistence for one- and two-year programs. Table 4 identifies only the relationship of the preenrollment variables with persistence when first quarter grade point averages have been removed from the regression equation. As with Table 3, separate regressions were developed for one- and two-year programs. Regression statistics not previously described but presented in the table include the unstandardized regression coefficient (B), the standard error (SE B), the standardized regression coefficient (Beta), the calculated t value (T), and level of significance (Sig T).

First Quarter Grade Point Average and Preenrollment Variables

Table 3 shows the regression equation for one- and two-year allied health programs regressing the dependent variable of persistence on

Table 3

Regression Analysis of Persistence in Calendar Days on First Quarter GPA and ASSET Variables for Students in One-Year and Two-Year Programs

| Variable | B | SE B | Beta | T | Sig T | Cumulative $R^2$ |
|---|---|---|---|---|---|---|
| **Students in One-Year Programs (N = 65)** | | | | | | |
| First Qtr GPA | 98.08 | 8.92 | .8634 | 10.995 | .0000 | .5803 |
| High School Science Grade | -46.10 | 12.58 | -.3085 | -3.665 | .0005 | .6218 |
| High School Math Grade | 26.82 | 11.29 | .1841 | 2.376 | .0207 | .6496 |
| Need Help With Work Experience Credit | 34.39 | 12.96 | .2001 | 2.655 | .0102 | .6751 |
| Need Help With Financing Education | -23.19 | 11.16 | -.1556 | -2.077 | .0421 | .6973 |
| (Constant) | 122.69 | 46.67 | | 2.629 | .0109 | |
| Final Adjusted $R^2$ | | | .6717 | SE 62.27 | | |
| Analysis of Variance F Ratio of 27.2 significant at .0000 | | | | | | |
| **Students in Two-Year Programs (N = 76)** | | | | | | |
| First Qtr GPA | 53.86 | 11.60 | .4330 | 4.643 | .0000 | .3059 |
| Need Help With Study Skills | -91.24 | 23.84 | -.5075 | -3.827 | .0003 | .3520 |
| Choice of Program | -13.71 | 5.14 | -.2315 | -2.668 | .0095 | .3986 |
| Need Help With Writing Skills | 49.63 | 20.15 | .3081 | 2.463 | .0162 | .4462 |
| Need Help With Financing Education | 23.87 | 11.00 | .1932 | 2.169 | .0335 | .4811 |
| (Constant) | 242.64 | 65.26 | | 3.781 | .0004 | |
| Final Adjusted $R^2$ | | | .4440 | SE 74.40 | | |
| Analysis of Variance F Ratio of 12.98 significant at .0000 | | | | | | |

first quarter grade point average and preenrollment variables. For one-year programs, the following five variables met the criteria for entry into the equation in the following order: (a) first quarter

Table 4

Regression Analysis of Persistence in Calendar Days on ASSET Variables for Students in One-Year and Two-Year Programs

| Variable | B | SE B | Beta | T | Sig T | Cumulative $R^2$ |
|---|---|---|---|---|---|---|
| **Students in One-Year Program (N = 71)** | | | | | | |
| Procrastination in Taking ASSET | 0.54 | 0.15 | .4909 | 3.659 | .0005 | .0885 |
| Need Help With a Physical Disability | -115.12 | 36.18 | .3390 | -2.182 | .0022 | .1624 |
| High School Math Grade | 43.03 | 17.74 | .2573 | 2.426 | .0180 | .2264 |
| Type of High School Certificate | -12.83 | 5.72 | -.3011 | -2.243 | .0282 | .2812 |
| (Constant) | 251.83 | 59.44 | | 4.236 | .0001 | |
| Final Adjusted $R^2$ | | | .2377 | SE 109.20 | | |
| Analysis of Variance F Ratio of 6.45 significant at < .0002 | | | | | | |
| **Students in Two-Year Programs (N = 80)** | | | | | | |
| Need Help With Study Skills | -133.95 | 28.48 | .6815 | -4.919 | .0000 | .1010 |
| Need Help With Writing Skills | 69.82 | 25.15 | .3947 | 2.776 | .0069 | .1724 |
| Need Help With Financing Education | 33.63 | 13.92 | .2473 | 2.417 | .0181 | .2295 |
| Choice of Program | -15.36 | 6.38 | -.2353 | -2.409 | .0185 | .2848 |
| (Constant) | 413.12 | 57.30 | | 7.209 | .0000 | |
| Final Adjusted $R^2$ | | | .2466 | SE 97.40 | | |
| Analysis of Variance F Ratio of 7.46 significant at .0000 | | | | | | |

grade point average, (b) high school science grade, (c) high school mathematics grade, (d) need help with work experience credit, and (e) need help with financing education. The cumulative $R^2$ (fraction of explained variance) reached .6973 with a final adjusted $R^2$ of .6717. The negative beta assigned to high school science grades indicated that lower grades are associated with longer persistence.

For two-year programs the following five variables met the criteria for entry into the equation in the following order: (a) first quarter grade point average, (b) need help with study skills, (c) choice of program, (d) need help with writing skills, and (e) need help with financing education. The cumulative $R^2$ reached .4811 with a final adjusted $R^2$ of .4440. Again, the first quarter grade point average accounted for a majority of the explained variance. Negative signs associated with the beta statistics for the two following variables indicated that students who did not need help with study skills tended to persist longer and that while the relationship between persistence and program choice is not clear, students choosing certain programs had longer persistence than those choosing others. Wanting help with writing skills and the financing of their education were variables positively related to greater program persistence.

Preenrollment Variables Only

Table 4 lists the regression equations which were developed for the use of ASSET preenrollment variables only. For one-year programs four variables met the criteria for entry into the equation in the following order: (a) procrastination in taking ASSET, (b) need help with a physical disability, (c) high school mathematics grade, and (d) type of high school certificate. The cumulative $R^2$ only reached .2812

with an adjusted $R^2$ of .2377. Procrastination (elapsed time between ASSET completion and enrollment) yielded an $R^2$ of .0885. The relationship between this variable and persistence may be expressed as the greater the time prior to enrollment that ASSET is completed, the greater the persistence. Similarly, not needing help with physical disability is related to greater persistence as are higher high school mathematics grades. The type of high school certificate provided a negative relationship. Essentially, those students who earned a traditional high school diploma persisted for a longer period of time.

Table 4 also identifies the multiple regression equation of ASSET variables to persistence for two year programs. The following four variables met the criteria for entry into equation in the following order: (a) need help with study skills, (b) need help with writing skills, (c) need help with financing education, and (d) choice of program. The four variables produced a multiple R of .2848 with an adjusted $R^2$ of .2466. It should be noted that the same ASSET variables were also entered for two-year programs as shown in Table 3, but in different order.

## CONCLUSIONS AND RECOMMENDATIONS

Conclusions of the study are somewhat limited since the sample was comprised of only 187 subjects from one institution and since the dependent variable of persistence was measured only over one year. Even with these limitations, the study suggests important conclusions related to persistence:

1. Academic performance, in terms of grade point average, is the best single predictor of persistence. Early indicators of academic performance may be just as useful as cumulative measures of grade point

average, particularly since they can identify a need for early intervention.

2. Cognitive measures of basic skills, such as the ASSET Language Usage, Reading, and Numerical skill scores were not as useful for predicting persistence as the self-reported measures obtained from the ASSET planning form. The cognitive measures, however, did correlate moderately with grade point average.

3. Students enrolled in one-year allied health programs differ from students in two-year programs in the factors that influence program persistence (e.g., the shorter the time commitment to an educational program, the more the perceived need for financial assistance negatively influences persistence.)

4. Although self-reported high school grades (Mathematics and Science) appear to be related to persistence, the direction of the relationship is not always clear, and may be a function of the degree of fit between the student and their vocational choice. At least, in one case, doing well in high school science was negatively related to persistence for students enrolled in one-year programs. Faculty in one-year programs supported this conclusion. They have found that some of their better prepared students are more likely to leave the program.

5. A student's perceived need for assistance, in factors related to academic and social integration into the institution, appears to be important in determining persistence/attrition. The relationship is not always clear. Students who requested help with study skills were more likely to withdraw from two-year allied health programs, while those requesting help with writing skills were more likely to persist.

6. The less time between a student's completion of the ASSET assessment and program enrollment the more likely the student was to withdraw. This variable may be a measure of commitment to the institution and/or program. While a strength of ASSET is that it is easily and quickly administered, it may capture data about students who have not adequately considered their program choice.

Based on the findings and limitations of this research, the authors offer the following recommendations. The ASSET assessment planning form should be used in its entirety by counselors and student advisers. The basic academic skills measures, alone, are not adequate for identifying students prone to program attrition. Information from the Educational Background and Plans Summary is an important component in diagnosing student needs.

Early intervention programs should be implemented for students applying to allied health programs. Interventions that may be helpful are encouraging early assessment of a student's academic strengths and weaknesses, physical and social concerns, and financial needs. Remedial support should be available prior to entry into a credit program and scheduled at times when students can use the services. Students that are identified as being more prone to withdrawal should receive extra attention from their instructors outside of class. Discussing their educational plans and goals in an informal context might be a useful way of providing the extra attention. Teachers should monitor early indicators of academic achievement, such as classroom test scores, mid-term grades, and first quarter grades. Poor academic achievement may be a symptom of a lack of direction and commitment to a course of studies.

As with other initiating studies, there is a need for further research. The ASSET Planning Form allows for easy collection and access to preenrollment variables. It is part of a national service to community colleges currently containing approximately 140,000 individual records and increasing daily. The form identifies 35 variables and provides for locally identified items. Research and evaluation efforts may be locally directed and/or coordinated with services available from the American College Testing Program. Given this relatively convenient and rich data base and the experience gained from the current research, the following suggestions for further research are warranted.

## FUTURE RESEARCH

There is a general need for replication with a larger sample containing more students, programs, and institutions. With a larger sample, regression equations could be developed for the type of allied health program rather than limited to program length as in the current study. The ability to develop program equations may be particularly important in that there was some evidence in the current study to suggest that the type of program that a student enrolls in was related to persistence. The curricular content, in terms of its orientation to the vocation, may be important for future study. It is recommended that the number of credit hours of transfer courses and courses taught outside of the vocational area be included in future studies of attrition from vocational programs.

Longitudinal studies would allow researchers to determine if requested assistance (e.g., financial aid, study skills, etc.) was in fact received, and for the development of new constructs such as

measure of academic self-concept or self-defeating behaviors such as delayed decision making. The current study also suggests that future research on attrition should employ a continuous measure of persistence studied over a longer period of time.

The authors believe that the persistence/attrition dilemma will become more important in the future. Institutional concerns to provide cost effective programs, concerns for individuals and their right to succeed, in addition to the necessity for meeting health manpower needs warrant continued research in this area. The ASSET Educational Planning Form with its combination of cognitive and non-cognitive variables can be an important source of information.

## References


American College Testing Program. (1986). ASSET technical manual, Iowa City, IA, Author.

Astin, A. W. (1972). College dropouts: A national profile. ACE Research Report, No. 7, Washington, D.C.: American Council on Education.

Astin, A. W. (1977). Four critical years. San Francisco: Jossey-Bass, Inc.

Bayer, A. E., Royer, J. T., & Webb, R. M. (1973). Four years after college entry. Washington, D.C.: American Council on Education. (ERIC Document Reproduction Service No. ED 077 329).

Beal, P. E., & Noel, L. (1979). What works in student retention. Iowa City, IA and Boulder, CO: American College Testing Program and The National Center for Higher Education Management Systems. (ERIC Document Reproduction Service No. ED 180 348).

Cope, R. G., Pailthorp, K., Trapp, D., Skaling, M., & Hewitt, R. (1971). An investigation of entrance characteristics as related to types of college dropouts. (ERIC Document Reproduction Service No. ED 052 749).

Eckland, B. K. (1964). College dropouts who come back. Harvard Educational Review, 34, 402-420.

Evans, Rupert N. (1971). Foundations of vocational education, Columbus, Ohio: Merrill Publishing Company.

Iffert, R. E. (1957). Retention and withdrawal of college students. (U.S. Office of Educational Bulletin 1958, No. 1), Washington, D.C.: U.S. Government Printing Office.

Lazerson, M., & Grubb, W. N. (1974). American education and vocationalism: A documentary history 1870-1970. New York: Teachers College, Columbia University, Teacher College Press.

Nielsen, N. (1986). An investigation of the utility of ASSET as a predictor of academic success or failure of students in vocational-technical programs in a two-year community college. Unpublished doctoral dissertation, The University of Iowa.

Pantages, T. J., & Creedon, C. F. (1978). Studies of college attrition: 1950-1975. Review of Educational Research, 48, 49-101.

Rounds, J. C. (1984). Attrition and retention of community college students: Problems and promising practices. (ERIC Document Reproduction Service No. ED 242 377).

Simpson, C., Baker, K., & Mellinger, G. (1980). Conventional failure and unconventional dropouts: Comparing different types of university withdrawals. Sociology of Education, 53, 203-214.

Summerskill, J. (1962). Dropouts from college. In N. Sanford (Ed.), The American college: A psychological social interpretation of the higher learning, pp. 627-657. New York: Wiley.

U.S. Department of Labor. (1986). Occupational outlook handbook. Washington, D.C.: U.S. Government Printing Office (Bulletin 2250).

# SELF-PERCEPTION OF NEEDS:
# A STUDY OF SECONDARY HEALTH OCCUPATIONS TEACHERS

Karen Gable

Indiana University

School of Education

Indianapolis, Indiana

# SELF-PERCEPTION OF NEEDS:

# A STUDY OF SECONDARY HEALTH OCCUPATIONS TEACHERS

Karen Gable

Needs assessment of the intended student group has long been held to be a primary component of curriculum design. Not only has the assessment been a tenet of pre-service educational program design but it has held a prominent role in continuing professional development of teachers. Curriculum theorists have advocated the identification of needs as a tool for student commitment, as well as the identification of content (Apps, 1985; Knowles, 1970; Tyler, 1949). Technical skills, as well as those with the cognitive and affective domains are recognized as being within the arena of needs.

Several studies of the various competencies for Health Occupations Education (HOE) teachers can be found in the literature. Tuckwiller (1988, p. 3) identified basic skills, defined as "the ability to read, write, and do math as measured by the California Achievement Test," of Health Occupations teachers in the state of West Virginia. Attention to mathematical skills in the preparation of teachers was recommended. Instructional competencies of Health Occupations teachers were identified via the Flanagan's Critical Incident Technique by Arlton (1975). Instructional methods and techniques, management, guidance, evaluation, and coordination were the behaviors found to be critical for secondary teachers. The technical skills or occupational competencies of teachers in secondary HOE programs were studied by

---

Karen Gable, Ed.D., Indiana University, School of Education, Indianapolis, Indiana.

Walters (1984). The competencies were obtained through a research study involving teachers and health practitioners employed in the health delivery system.

Although the state of Indiana has recently revised certification patterns for teachers, the needs of the Health Occupations teachers currently holding a Conditional Vocational license or a Standard teaching license in Health Occupations were unknown. Educated estimates were available but current data were unavailable for analysis.

The purpose of this descriptive study was to collect and analyze data regarding the self-perceived needs of the secondary health occupations teachers. Specifically, the objectives were to identify the technical skills or competencies in which the teachers felt (a) competent but were not currently teaching, (b) competent and were currently teaching, or (c) the need for training. The identification would be a basic step in the design of future pre-service, in-service, and continuing professional educational programs.

## METHODS AND PROCEDURES

The method chosen for the data collection was a survey. The population consisted of the entire group of HOE teachers located in the secondary schools of the state of Indiana (Evans, 1988). A forced-choice questionnaire was the instrument used.

The tool was a modified version of the "Teacher Self-Assessment" portion of the "Occupational Competency Profile for Health Occupations Education" developed by Walters (1984). The instrument lists occupational competencies for fourteen areas or departments within the typical hospital setting. These are the Business Office, Blood Bank,

Cardio-Pulmonary Services, Emergency Room, Medical Laboratory, Medical Records, Nursery, Nursing Care Services, Operating Room, Pharmacy, Physical Therapy, Radiology, Respiratory Therapy, and Unit Coordinator. In addition to the hospital, five health agencies have skills associated with those listed -- Dental Office, Medical Office, Mental Health Center, Public Health Agency, and Veterinary Clinic. Each of the 436 competencies is assigned a response as to the self-perceived competence and/or need for training.

The instrument was mailed with a cover letter during the Fall of 1988 to each teacher identified in the Health Occupations Education 1988-1989 Directory for the state of Indiana. A total of 43 (62%) out a possible 69 instruments were returned. All returned instruments were declared usable and subsequently processed. Data analysis using frequency distributions was then undertaken.

## FINDINGS

The findings will be presented for each of the three response categories across the competency areas. Specific findings will be followed by the broad general findings. Only those responses representing above median percentages (50%) are presented here.

### Competent but not currently teaching

Fifty-seven competencies within the category of competent but not currently teaching received at least a 50 percent response rate by teachers. Of those 57, the following competencies received at least a 70 percent response rate: (a) Use duplicating machines, (b) Copy Doctor's orders onto Kardex, (c) Complete laboratory request forms, (d) Request paper supplies, (e) Care of infant in Isolette, (f) Clean equipment, and (g) Stock supplies.

Table 1 list the seven competencies in descending order and the department or agency in which the skill was utilized. These seven competencies were selected by 67-79 percent of the respondents.

Table 1

Percentage of Respondents Expressing Self-Perceived Competence of Skill but Not Teaching the Skill

| Skill | Department/Agency | Percentage |
|---|---|---|
| Use of duplicating/Xerox machine | Business/Hospital<br>Medical Records/Hospital | 79 |
| Copy Doctor's orders onto Kardex | Unit Coordinator/Hospital | 78 |
| Complete lab request forms | Unit Coordinator/Hospital | 78 |
| Request paper supplies | Unit Coordinator/Hospital | 74 |
| Care of infant in Isolette | Nursery/Hospital | 71 |
| Clean equipment | Nursery/Hospital | 71 |
| Stock supplies | Business Office/Hospital<br>Nursery/Hospital<br>Operating Room/Hospital | 67-75 |

Note: N = 43

Competent and currently teaching

Teachers identified 227 competencies as those with which they were competent and were currently teaching. Forty-nine of the 227 skills received at least a minimum of 70 percent response rate. These were:

1. Take vital signs;
2. Weigh patients;
3. Measure height of patients;
4. Give Range of Motion exercise;
5. Transport patient in wheelchair;
6. Use Testape;
7. Use Clinitest;
8. Transport patient on stretcher;

9. Perform First Aid and CPR;
10. Transport patient in wheelchair with I.V.;
11. Use Acetest;
12. Use Chemstrips;
13. Clean work stations and equipment;
14. Dress/undress patients;
15. Make beds;
16. Collect urine specimens;
17. Give, remove, clean bedpans, urinals;
18. Give am and pm care;
19. Prepare patients for meals;
20. Carry food trays;
21. Feed patient;
22. Serve between meal nourishment;
23. Measure, record, and report intake/output;
24. Give oral hygiene;
25. Adjust a patient's bed;
26. Give nail care to patient;
27. Give back rub;
28. Give bed bath;
29. Give skin care;
30. Give tub bath;
31. Shampoo hair;
32. Position a patient as directed;
33. Clean thermometer;
34. Admit patient;
35. Discharge patient
36. Apply heat or cold packs;
37. Give enemas;
38. Apply arm sling;
39. Apply triangular bandage;
40. Apply splint;
41. Ambulate patient;
42. Move and turn patient;
43. Keep patient unit neat and arranged for comfort and convenience;
44. Fill water pitchers with ice and water;
45. Perform isolation techniques -- handwashing, gown, cap, mask, and disposal of materials;
46. Shave a patient's face;
47. Answer patient unit signals;
48. Run errands to other departments/units; and
49. Perform other duties as assigned.

Table 2 lists nine of the 49 competencies which received a minimum of an 80 percent response rate and the department or agency in which the skill was utilized. Overall, the vast majority of HOE teachers felt capable of performing the competencies listed and are currently teaching those skills.

Table 2

Percentage of Respondents Expressing Self-Perceived Competence in Skill and Currently Teaching the Skill

| Skill | Department/Agency | Percentage |
|---|---|---|
| Take vital signs | Medical Office<br>Respiratory Therapy/Hospital<br>Nursing Care Services | 85-100 |
| Weigh patients | Nursing Care Services/Hospital<br>Blood Bank/Hospital | 95 |
| Measure height of patients | Nursing Care Services/Hospital | 95 |
| Give Range of Motion exercises | Nursing Care Services/Hospital | 93 |
| Transport patient in wheelchair | Business (Admissions)/Hospital | 92 |
| Collect urine specimens | Medical Laboratory/Hospital | 89 |
| Use Clinitest | Medical Laboratory/Hospital | 83 |
| Transport patient on stretcher | Business (Admissions)/Hospital | 81 |
| Use Testape | Medical Laboratory/Hospital | 80 |

Note: N = 43

Need for training

Seventy-six of the 436 competencies received at least a 50 percent response rate from teachers indicating the need for training. Teachers expressed the need for training in several skill areas with the largest number being identified within the medical laboratory field. Specifically, the following 22 competencies received at least 70 percent response rate: (a) Perform Sickle Cell Count, (b) Perform Rheumatoid Arthritis

screening procedure, (c) Perform monospot procedure, (d) Perform wbc differential, (e) Perform bleeding time measurement procedure, (f) Count platelets, (g) Perform coagulation time procedure, (h) Place animals in cages*, (i) Work in the developing room*, (j) Perform astigmatism vision screening*, (k) Use hemacytometer, (l) Perform RBC, (m) Perform wbc, (n) Use microhematocrit centrifuge, (o) Determine Rh (p) Determine erythrocite sedimentation rate, (q) Determine hemoglobin concentration. (r) Compile annual drug list*, (s) Hold animals for exam*, (t) Use audiometer*, (u) Perform Jaeger vision screening*, and (v) Perform hematocrit procedure*. Eight of the 22 competencies which are starred (*) are found outside the medical laboratory area.

Table 3 lists the 22 competencies in descending order and the department or agency in which the skills are utilized. These competencies received a high expression of need for training as indicated by the percentage of responses.

While the expressed need for training was identified, the very low percentage of response rates on some of the competencies indicated that further training related to those skills was not perceived to be needed. Receiving less than 10 percent response rates were such skills as (a) Taking vital signs, (b) Answering the phone and taking messages, (c) Giving skin care, (d) Collection of urine specimens, (e) Using Clinitest and Testape, (f) Weigh and measure height of patient, (g) Give range of motion exercises, (h) Fill water pitchers, (i) Perform handwashing techniques, (j) Give bottle to infant, (k) Change diapers, (l) Take axillary temperature, (m) Burp infant, (n) Dress/undress infant, (o) Bathe infant, (p) Take rectal temperature, (q) Perform

Table 3

Percentage of Respondents Expressing Self-Perceived Need for Training of Skills

| Skill | Department/Agency | Percentage |
|---|---|---|
| Perform hematocrit | Veterinary Clinic | 82 |
| Perform Sickle Cell Count | Medical Laboratory/Hospital | 79 |
| Perform RA procedure | Medical Laboratory/Hospital | 79 |
| Perform monospot procedure | Medical Laboratory/Hospital | 78 |
| Perform wbc differential | Medical Laboratory/Hospital | 77 |
| Perform bleeding time procedure | Medical Laboratory/Hospital | 76 |
| Perform Jaeger vision screening | Medical Office; Public Health Agency | 75 |
| Count platelets | Medical Laboratory/Hospital | 74 |
| Perform coagulation time procedure | Medical Laboratory/Hospital | 74 |
| Place animals in cages | Veterinary Clinic | 73 |
| Work in Developing Room | Radiology/Hospital | 73 |
| Perform astigmatism vision screening | Medical Office Public Health Agency | 72-78 |
| Use hemacytometer | Medical Laboratory/Hospital | 71 |
| Perform RBC | Medical Laboratory/Hospital | 71 |
| Perform WBC | Medical Laboratory/Hospital | 71-74 |
| Use microhematocrit centrifuge | Medical Laboratory/Hospital | 71 |
| Determine Rh | Medical Laboratory/Hospital | 71 |
| Determine erythrocite sedimentation rate | Medical Laboratory/Hospital | 71 |

Table 3 (continued)

| | | |
|---|---|---|
| Determine hemoglobin concentration | Medical Laboratory/Hospital | 71 |
| Compile annual drug list | Pharmacy/Hospital | 71 |
| Hold animals for exam | Veterinary Clinic | 71 |
| Use audiometer | Public Health Agency | 70 |

Note: N = 43

first aid and CPR, (r) Transport patient in wheelchair, (s) Make beds, and (t) Deliver reports/messages to other units.

The first 16 competencies received up to a maximum of three percent (3%) response from the teachers in this study indicating a low need for training.

Generally, the teachers expressed a strong need for further training in specific tests and procedures in the Medical Laboratory and Medical Office areas with response rates ranging from 70 to 82 percent. Respondent indicated a need for skills in the handling of animals and specific laboratory procedures in the Veterinary Clinic. Computer usage for the areas of the Business Office and Medical Records was a third area identified as a need for training. Procedures specific to the Pharmacy, Darkroom procedures, and cleaning of equipment in the Respiratory Therapy area were also identified as training needs. Instrumentation and the handling of restorative materials were aspects of the Dental Office for which teachers expressed the need for training. The competencies to perform vision screening and the conduction of drug awareness programs for elementary, middle school,

high school, and community populations were skills needed in working in the Public Health Agencies.

The strong expression of need for educational experiences in non-nursing competency areas is not surprising. The vast majority of secondary teachers in this study are from the nursing field. Few have medical technology, dental, or veterinary backgrounds. Additionally, the need for the development of computer skills appears to be reflective of the technological advances which have permeated both the educational and health care delivery systems.

## CONCLUSIONS AND RECOMMENDATIONS

The following conclusions have been drawn on the basis of the analysis of data:

1. The greatest expression of self-perceived need for training is for competency related to medical laboratory procedures and computer utilization.

2. Other areas of expressed need are in specific skills related to the Dental Office, Respiratory, Veterinary Clinic, and Public Health Agency.

3. The need for training is not expressed for general nursing care skills.

Based upon the findings and the conclusions, two recommendations are made as follows: (a) Pre-service and in-service educational experiences should incorporate opportunities to develop competencies in laboratory procedures and computer skills, and (b) continuing professional educational programs should attempt to address the expressed needs of the secondary Health Occupations teachers. State conferences and university offerings should reflect the self-perceived needs of

these adults involved in the nexus of the educational and health care systems.

## References


Apps, J. (1985). Improving practice in continuing education. Jossey-Bass, San Francisco.

Arlton, D. (1975). Competencies for secondary health occupations teachers. U.S. Department of Health, Education, and Welfare, National Institute of Education, Washington, D.C.

Evans, H. (1988). Health Occupations Education, 1988-1989 Directory. Indiana Department of education, Indianapolis, IN.

Knowles, M. (1970). The modern practice of adult education. Follett Publishing Company, Chicago, IL.

Tuckwiller, B. (1988). "A pilot basic skills competency testing program--indications for health occupations teachers." Paper presented at the national conference of the Association of Health Occupations Teacher Educators, December 1988.

Tyler, R. (1949). Basic principles of curriculum and instruction. University of Chicago Press, Chicago, IL.

Walters, N. (1984). "Occupational competency profile for health occupations education program: Teacher self-assessment." Report No. 11. Center for Vocational and Adult Education, Auburn University.

HEALTH OCCUPATIONS EDUCATION NATIONAL RESEARCH CONFERENCE
CURRENT AND FUTURE USE OF THE MULTISKILLED HEALTH WORKER

Joyce Brandt

Interim Coordinator

Health Occupations Education

The University of Iowa

and State Consultant

Iowa Department of Education

Iowa City, Iowa

HEALTH OCCUPATIONS EDUCATION NATIONAL RESEARCH CONFERENCE

# CURRENT AND FUTURE USE OF THE MULTISKILLED HEALTH WORKER

Joyce Brandt

## Introduction

The health care industry is rapidly changing. Many of the changes are reactions to environmental changes and government intervention in health care delivery. There has been a continuous growing demand for health care services due to increased population, advanced technology, and increased access to health care services. The changes in the health care delivery are affecting the manpower needs of the industry. Health occupations educators, who prepare much of the labor force for this industry, need to consider these changes when planning for and developing programs or when they are evaluating and revising ongoing programs. This study examines one aspect of the changing manpower needs in small hospitals, the current use and future need for multiskilled health workers.

## Purpose of the Study

The purpose of this study was to describe the current use and determine if there is a future need for multiskilled health workers in small Iowa hospitals and to further describe the skills and mixes of skills that would provide the type of personnel preferred by hospital managers. Specifically the two main research questions were: (a) Are

---

Joyce Brandt, Ph.D., is Interim Coordinator of Health Occupations Education at The University of Iowa and State Consultant for the Iowa Department of Education.

small hospitals in Iowa using health personnel as multiskilled workers? (b) What is the future potential use for multiskilled personnel?

## METHODOLOGY

During the planning for the study the Iowa Hospital Association, Small Hospital Division, was contacted and provided technical assistance for the study. As a result the study was discussed with hospital administrators at a scheduled meeting and was described in a weekly mailing prior to the first mail contact requesting participation. In addition to supporting the study, the Iowa Hospital Association requested an opportunity to act as an advisory committee in considering the results and determining future curriculum needs.

### Sample Population

The population for the study consisted of the 96 small Iowa hospitals (under 100 beds) that are licensed by the Iowa Department of Inspections and Appeals to provide general acute care. A random sample of 43 hospitals was selected from this population. The population and sample were stratified by size and long term care patient services. Thirty-eight respondents (40% of the population and 88% of the random sample) agreed to participate in the study.

### Instrumentation

The questionnaire to collect the data was divided into three sections. Section A provided demographic information regarding the hospitals in the survey, including ownership, services provided and types of specialty personnel on staff. Section B contained questions designed to describe the current use of multiskilled health personnel. The questions in Section C were designed to determine if respondents were interested in using more/other types of multiskilled health

personnel in the future. Section's B and C also included some general questions to determine the respondents' awareness and support of multiskilled workers, including advantages and disadvantages of using multiskilled workers.

Although similar studies had been conducted, the instruments that were used did not specifically address the research questions of this study. Therefore, the questionnaire used for this study was developed with the assistance and advice of the Iowa Hospital Association and the dissertation committee. The original questionnaire was piloted in three small hospitals. Following the pilot, several items were modified.

Data Collection

The data were collected through a pre-scheduled phone interview with the persons identified by the chief administrator. The phone interview was used in an attempt to increase the reliability of the data collected, increase the response rate and to decrease the number of unanswered questions. The cost factor in time and phone expenses was efficient when compared with on-site interviews.

The process used to obtain the assistance from the small hospitals included the initial information in the Lettergram from the Iowa Hospital Association, followed by a personal letter to the chief administrator from the study investigator. The letter requesting participation in the study included a copy of the questions that would be asked during the phone interview. The week following this mailing administrators were contacted by phone and asked if they were willing to participate in the study. Once the administrator agreed to participate he/she was asked to identify the appropriate person(s) to

complete the study. Thirty-one of the respondents were hospital administrators, five respondents were department heads, and two were personnel directors.

Data Analysis

The data were analyzed and displayed through frequency distributions. The data provided tables of frequency counts and, when appropriate, percentages of the counts were used.

## DESCRIPTION OF MODELS/DEFINITION OF TERMS

Attendance at several national meetings and a search of the literature helped in the identification of five major multiple skilled manpower models that were being used or were being proposed. These models were analyzed and provided a framework for the survey questions and data analysis.

These models included:

1. The Rural Allied Health Manpower Project developed in 1974 by Art Lungenbeel who was at Southern Illinois University. The model was developed at the time to alleviate shortages of health professionals in the area. The curricula completer was a multi-competent health technician with basic skills in two of three formerly traditional specialities-medial laboratory, x-ray, and/or respiratory therapy. The curriculum was an open entry open exit type with general studies threaded throughout. No health credential was awarded at completion of the program.

2. Alabama Multicompetency Clinical Technician (MCCT) was a two-year program based on a one-year Medical Assistant program. At the end of the year completers were eligible to take the Medical Assistant Certification examination. During the second year, students became

more proficient in laboratory, radiographic, patient education, and other clinical skills.

3. Broadbanding Model was pioneered in New York. Broadbanding is a manpower model emphasizing the combining and consolidating of jobs under a single occupational title. An example would be combining housekeeping and laundry department and having personnel trained in both departments so they could work wherever needed. Much of this training is done on-the-job.

4. The Crosstraining Model builds upon core competencies within a specialty area. For example, the general core area of medical laboratory could include cytotechnologies and/or histotechnologist. Credentials are required at each level.

5. The Add-A-Comp Model was designed and named by personnel from Methodist Hospital in Indianapolis, Indiana. The training allows health specialists with a current credential to add competencies in related areas. An example would be a Licensed Practical Nurse who had competencies/skills in radiography.

The following four terms evolved from the analysis of these models and are central to the study. While there was general agreement among use of these terms by the respondents some variance may be expected. This slight variance along with different departmental responsibilities may lead to some overlap in the use of inter- and intradepartmental when describing multicompetency skill areas.

Interdepartmental describes multiskilled workers assigned to provide services in more than one department. Intradepartmental describes multiskilled workers assigned to work in several units or areas within departments. Multiskilled Health Worker applies to those

health care specialists who are trained, credentialed, and assigned to: (a) multiple units or areas within a department or (b) more than one department. Add-a-Comp is a term initiated by the Methodist Hospital of Indiana Corporation to describe preparation for interdepartmental skills assignment to traditional health specialists. The assignments and skills of the multiskilled worker are diverse.

## RESULTS AND DISCUSSION

The first research question asked if small hospitals in Iowa were using health personnel as multiskilled workers. Respondents identified the additional skill areas they had assigned to traditional health care workers. For the second research question, what is the future potential for the use of health care personnel in multiple skills, respondents identified desirable future added competencies and skill mixes.

Table 1 identifies competency areas assigned to traditional health care workers as reported by the respondents. In order for a competency area to be initially listed in the table at least three responding departments assigned the competency area to traditional health care workers. The entire array of skills reported are therefore not presented in the table. In total, 39 skill areas were identified by at least one respondent. Specific skills within interdepartmental assignments were not identified. However, it may be assumed that the additional competencies assigned on an interdepartmental basis tend to be basic and are certainly not inclusive of all skills performed by a traditionally prepared health care worker.

Current Use of Multiskilled Personnel

The current use of health personnel as multiskilled health workers was measured by determining (a) if personnel were assigned intradepartmentally and (b) if and to what departments personnel were assigned interdepartmentally. The data were collected by hospital department.

Intradepartmental assignments, the cross-training model. Hospital departments are often subdivided into specialty areas to provide the technical services required in each area, for example nursing service is often subdivided into obstetrics, medical-surgical units, etc. It has often been the practice to hire and assign personnel to work only within a specialty unit within one department. The literature refers to the use and the training of personnel to work across all areas within a department as cross-training.

All respondents reported at least one person in one department was trained and assigned to work in more than one unit or area within a department. The cross-trained personnel assignments were often made on a daily basis dependent on the patient care services and staffing needs of the individual units.

Interdepartmental assignments, the added competency model. Thirty-six (95%) of the 38 respondents in the sample reported they trained and assigned at least one health care specialty group to provide additional services in other departments. The number of specialty groups assigned to other departments per hospital ranged from one to six specialty groups.

Registered nurses. It is required by Iowa Administrative Code (470, Chapter 51) that all acute care hospitals in Iowa have at least

one registered nurse on staff at all times. In addition the nursing department provides the largest proportion of direct patient care services in hospital. As a result, the greatest percentage of staff in all hospitals is in nursing service. Traditionally, registered nurses, licensed practical nurses, and nurse aides are the health occupations personnel who provide the majority of hospital staffing.

Thirty-six (94%) of all the respondents surveyed reported they were using at least some of the registered nurses on staff in all nursing care areas. Several of the respondents commented that frequently the patient census was low or nonexistent in specialty areas. In an attempt to better utilize nursing staff and provide full-time employment respondents were required to use the registered nurses in all areas staffed by nursing service. Several respondents reported it was only the experienced staff that were cross-trained to work in more than one of the nursing service areas, however, they would like to be able to exercise this option with all of the nursing staff.

Respondents reported registered nurses were assigned to 11 tasks considered to be outside the nursing department, these are classified interdepartmental or additional skill assignments. The most frequently assigned interdepartmental task for registered nurses was respiratory therapy. A total of 15 (39%) of the total sample assigned registered nurses to provide respiratory therapy skills.

The current shortage of health personnel seems to be affecting interdepartmental assignments for registered nurses. Five respondents reported they would like to utilize some of their nursing staff in other areas but due to the current shortage of registered nurses, they

felt fortunate to have enough nurses available to staff the nursing department.

Most of the training for registered nurses assigned nontraditional skills was on the job training except for nurses required to take the American Heart Association Advanced Cardiac Life Saving (ACLS) course, offered in the community colleges or taught by qualified staff in the hospital. ACLS is a requirement to provide services to critical coronary care patients.

Licensed practical nurses. Licensed practical nurses are also used to provide direct patient care in nursing departments. The scope of practice or nursing service a licensed practical nurse can provide is defined by the Iowa Board of Nursing in the Nurse Practice Act, Iowa Administrative Code, Chapter 6. The Code limits the care a practical nurse can provide and requires they practice under the direct supervision of a registered nurse in the acute care setting. Because of these restrictions and the perceived lack of diversity of the licensed practical nurse, a total of 17 (45%) of the respondents reported they do not use practical nurses or they use them only in long term care. Two of the respondents reported they had just begun rehiring licensed practical nurses because of the nursing shortage.

In those hospitals which hire practical nurses, they were assigned to six tasks considered to be outside the nursing department. As with the registered nurses the most frequent interdepartmental task to which practical nurses were assigned was respiratory therapy. Four of the tasks to which practical nurses were assigned were tasks to which registered nurses were also assigned. Two of the tasks, ward clerk

duties and EMS responsibilities were not included in the registered nurses interdepartmental assignments.

The licensed practical nurses were prepared for all nontraditional tasks except home care and EMS through on the job training. In these two areas there are specific state approved courses required for staff to provide these services.

Nurse aides. Nurse aides are the other group of personnel traditionally used in the nursing department. There are no specific training requirements for nurse aides who work in acute care, however, nurse aides who work in long term care must successfully complete a 60 hour state approved curriculum. The acute care facilities either require nurse aides to take a state approved 60 or 120 hour course or train them on the job.

Twelve (32%) of the hospitals in the survey did not use nurse aides or used them only in long term care. This change has occurred because of the increasing acuity level of patients in acute care.

Aides are trained and assigned to six additional tasks in other departments. The tasks to which nurse aides are most frequently assigned are respiratory therapy and ward clerk. The ward clerk assignment can be considered by some as cross-training or an intradepartmental assignment. In two of the hospitals aides are also trained to work in housekeeping and laundry and are assigned as needed between the three departments. The literature refers to this type of utilization of personnel as broadbanding.

The laboratory department. The laboratory department provides a specialized diagnostic service in hospitals. The staff are technically trained to analyze specimens which are used in diagnosing various

disorders or determining health changes that are occurring in patients. There are no state licensure requirements for laboratory personnel; however, Federal Standards require the person in charge of the laboratory to be either nationally certified or pass a National Laboratory examination.

Twenty-one (55%) of the respondents in the sample reported that laboratory personnel at their institutions were assigned only to the medical laboratory. In the institutions assigning interdepartmental tasks, laboratory personnel were most frequently assigned to EKG and radiography.

Radiography department. The radiography department is a specialized department that administers radiographs to assist in diagnosis or in radiation therapy to assist in treatment of some diseases. The diagnostic service is required in all licensed acute care hospitals in Iowa, while radiation therapy is a highly technical service usually provided in larger hospitals. Additionally, since some of the diagnostic equipment is highly specialized and too expensive for just occasional use, some small hospitals have contractual service agreements with larger hospitals or have formed co-ops and use mobile units to regularly transport diagnostic equipment and personnel to the various sites. Nine (24%) of the hospitals in the survey assign personnel within the radiography department to assist with mobile units. The assignment to mobile units and ultrasound would reflect the cross-training model.

Sixteen (42%) of the respondents reported that radiography personnel were not assigned to other departments. The only

interdepartmental assignment identified by at least three respondents is in the laboratory skill area.

A recent state law requires all persons who administer radiographs to obtain a permit to practice. Permits are issued by the Iowa Department of Public Health for two levels of personnel. These permits are for generalists who can perform all types of diagnostic exams and for "limited radiographers" who are limited to the types of exams they can administer and to the setting in which they can perform these exams. Generalists have usually completed a formal two year program and passed a national examination. "Limited radiographers" have successfully completed a 100 hour State approved course and passed a national exam. However, when the law was implemented persons who were administering radiographs in both categories, regardless of preparation, were grandfathered. There are still quite a few of these "grandfathers" administering radiographs in Iowa, in both the licensed practitioner's office and in the small hospitals.

Records department. The medical records department is responsible for maintaining patients' records, keeping the statistical data related to patients' care and submitting requests for reimbursement to third-party-payers such as insurance companies, medicare, and medicaid. Since the implementation of the prospective payment process for reimbursement for medicare/medicaid patients the work load in the medical records departments has increased. Personnel assigned to this department require at a minimum a basic knowledge of medical terminology, diagnostic categories and coding. Reimbursement for care is dependent on correct coding and reporting.

Twenty-five (66%) of the respondents in the sample reported that personnel in medical records were not assigned to tasks outside the medical records department. Of the hospitals assigning interdepartmentally, quality assurance was the most frequently reported additional task to which medical records personnel were assigned followed by the business office and discharge planning skill areas.

Respiratory therapy department. Respiratory therapy departments assist in the diagnosis and treatment of patients who have lung and heart disease. When respiratory therapy was first initiated as a therapy it was provided by registered nurses or physical therapists. Acute care hospitals are not required by state law to provide respiratory therapy services, however, there has been an increase in the number of patients with chronic lung diseases in recent years who benefit from the basic treatments provided by respiratory therapy.

Twenty-one (55%) of the respondents in the sample reported they had a respiratory therapist on staff. Another four (11%) reported they had contractual agreements with respiratory therapists to provide consulting services when needed.

Although 17 (45%) of the respondents did not have a respiratory therapist on staff, 16 (42%) respondents provided some type of respiratory therapy services. The respiratory therapy services in these hospitals were provided by a number of other health personnel, including registered nurses, licensed practical nurses, nurse aides, emergency care personnel, and physical therapists. These personnel also supplemented the respiratory therapist when the therapist was not scheduled to work.

Of the 21 (55%) who reported they had respiratory therapists on staff, six (16%) assigned the respiratory therapist additional tasks in other departments. The most frequently assigned task to which respiratory therapists were assigned was EKG. Respondents reported therapists were either trained how to perform this task in their preparatory program or learned the skill on the job.

Hospital based ambulance service departments. Emergency medical personnel were hired in those hospitals that provided the local ambulance service of the community. There were four levels of ambulance services as defined by the Iowa Department of Public Health. An EMT-A service was a basic service; the next level of service was EMT-D, this was a service where EMT-A's were trained to defibrillate patients who have had cardiac arrest; EMT-I was an EMT service where personnel were prepared to provide more technical skills in treating emergencies; and the EMT-P was a service with the highest technically trained personnel.

All ambulance services were categorized relative to equipment on ambulances and the training of the personnel who provided the services on the ambulances. Personnel who provided emergency care in ambulances must have successfully completed an approved course and passed the national certification exam which had a written and performance component.

The task in other departments to which emergency personnel were assigned most frequently was respiratory. In three instances licensed practical nurses and in one instance a nurse's aide were trained to provide the emergency ambulance services. When emergency personnel were not needed on the ambulance, they were assigned to the nursing

department to provide nursing care. The other most frequent assignments for emergency personnel were in housekeeping, maintenance, and security. All persons who provided emergency ambulance services had successfully completed the state approved course.

Potential Use of Multiskilled Health Workers.

The first question asked in determining future use was "Would you use more/other types of multiskilled workers if they were available?" Thirty (79%) of the respondents, answered this question with 'yes.' Seven (18%) said they did not know, it would depend on the availability of training programs, or it would depend on the areas in which the multiskilled workers were trained. However, these seven (18%) respondents indicated something had to be done with the growing number of shortages for health care professions. Only one respondent would definitely not use multiskilled workers in the future because in that institution patients were critically ill and the physicians would not allow it.

Respondents were also asked to identify additional skill areas and suggest the traditional health specialists who could be prepared to function in these needed areas. Table 2 identifies the additional skill areas respondents thought important and the traditionally credentialed health personnel suggested for additional preparation. In 38 instances respondents wanted to add basic respiratory therapy skills to seven established health specialties. The next most frequently mentioned additional competencies to be added were laboratory (32 times), radiography (25 times), physical therapy (23 times), and EKG skills (21 times).

All but one of the respondents felt registered nurses were one of the most versatile health workers on staff. Nine of the respondents, however, did feel that with the current shortages most of the registered nurses were already over extended. Twelve (32%) respondents felt registered nurses should be prepared to provide basic respiratory therapy skills, 10 (26%) felt they should be cross-trained to work in all areas within the nursing department, and six (16%) felt they should be prepared to perform EKG's.

The respondents' feelings regarding practical nurses varied. Four (11%) of the respondents commented that the practical nurse was the most versatile of all health workers and they should become the health specialist to acquire additional skills. Six (16%) respondents felt added skills could not be given to the practical nurse because the board of nursing had limited their scope of practice. Thirteen (34%) of the respondents suggested respiratory skills for practical nurses making this the most frequently mentioned skill area. Five respondents (13%) indicated laboratory and emergency skills as the second most frequently mentioned skills area.

Additional skills most frequently suggested for the nurse aides were physical therapy skills, nine (24%) respondents and ward clerk skills, seven (18%) respondents. Other skill areas mentioned by more than one respondent were respiratory skills, three (8%) respondents and occupational therapy skills, three (8%) respondents.

Twenty (53%) of the respondents felt there should be some basic radiography skills performed by laboratory personnel. The respondents did not intend to replace the currently credentialed health worker in either area but to supplement their skills by having the other

professional prepared to assist with basic skills when the work load in either area became heavy or to assist on call and during vacations. In addition five (13%) respondents felt laboratory personnel should be prepared to do EKG's. Other skills indicated for laboratory personnel were from the respiratory therapy and EEG areas. The relationship between laboratory and radiologic skills is further attested to by the 18 (47%) respondents who suggested that radiologic technicians be prepared to perform basic laboratory skills. Other skill areas suggested for the radiographer were respiratory therapy and emergency care.

Eleven (29%) respondents suggested physical therapists could be prepared to provide basic occupational therapy skills. Several suggested this combination would be useful for rehabilitation services. Conversely, nine (24%) of the respondents indicated that occupational therapists could perform basic physical therapy skills. This relationship is similar to the skill mix identified for the laboratory/radiography skill area. Respiratory therapy skills were identified as a useful addition for both physical and occupational therapists. The most frequently mentioned additional skill for respiratory therapists was EKG, six (16%) respondents followed by laboratory and emergency skills, five (13%) respondents.

Some additional comments that were made regarding the additional competency preparation model included, "All credentialed personnel should have added supervisory skills, business administration, and budgeting. All health programs should be developed so laddering can be easily facilitated." "Educational programs need to get back to basics and forget high technology, the employers can teach them the high

technology if employees are well grounded in the basics." "All credentialed personnel need to have more geriatrics included in the basic curriculum." "All credential personnel need to have a few years experience in their primary preparation area before additional skills can be added."

## SUMMARY

The current use of health personnel as multiskilled workers was measured by determining if specialists were assigned to more than one unit intradepartmentally or to more than one department, interdepartmentally. The intradepartmental assignments are sometimes classified as cross-training and the interdepartmental assignments as an added competency. All of the respondents reported they were currently assigning at least one health care specialist to work in several or all units within the department. Ninety-five percent of the respondents reported they trained and assigned at least one person from one specialty group interdepartmentally. The small Iowa hospitals are using health specialists as multiskilled workers. Registered nurses were the specialty group most frequently assigned interdepartmentally. Nurses were assigned to 11 tasks in other departments. Respiratory therapy was the interdepartmental task most frequently assigned to health specialists.

A majority (79%) of the respondents said they would use more and other types of multiskilled health workers in the future if they were available. In 38 instances respondents wanted various health specialists to have an additional skill in respiratory therapy. The other most frequency desired interdepartmental assignments were in laboratory (32 assignments), radiography (25 assignments) and physical

therapy (23 assignments). Interdepartmental assignments between radiography and laboratory personnel were suggested as was the combination of physical and occupational therapy. The respondents felt they would use multiskilled workers in the future. They were knowledgeable regarding the types of multiple skill preparation models available and the majority could identify the skill mixes they felt would be most valuable in the future.

## RECOMMENDATIONS

The purpose of assessing the current use of multiskilled health workers was to determine if area colleges should consider revising/developing new programs to meet the changing industry needs. While acknowledging the need for further investigation to identify specific skills and the necessity to involve other health care agencies, the following recommendations based on data collected in this study should be assessed and prioritized with the assistance of the Iowa Hospital Association:

1. A short term course should be developed to uniformly prepare health specialists for respiratory therapy skills.

2. Specific competencies in radiography for laboratory personnel and laboratory skills for radiography personnel should be identified.

3. EKG courses should be offered to health specialists.

4. A short term course for ward clerks should be investigated for nurse aides.

5. Credentialing for additional competencies should be developed cooperatively between the area colleges and the health industry.

6. There should be further consideration to assessing the need for a 'rural health worker' in Iowa, necessary skills and credentialing.

7. Preparatory programs in the area colleges should assess the amount of clinical time that is spent in small hospitals and how graduates are prepared for roles in health care delivery in small hospitals.

8. Preparatory programs should introduce the multiskilled concept to avoid possible barriers in the work place.

## REFERENCES


Baker, W. D. (1986). The health care industry as a whole. Restructuring the health care labor force: The rise of the multiskilled health practitioner. Birmingham: University of Alabama at Birmingham, pp. 7-9.

Blayney, K. D. (1986). Allied health update: Restructuring the health care labor force. The Alabama Journal of Medical Science, 13.

Bohman, M. A. (August, 1983). Broadbanding. Report submitted to American Hospital Association, Council on Human Resources. New York.

Hatch, T. D. (1986). Cost containment. National Health Occupations Education Curriculum Conference, Iowa City: University of Iowa, pp. 9-17.

Jaffe, J. A., Oglesby, E. H., & Drewes, D. W. (eds.). (1982). Technologies of the '80s: Their impact on health occupations. Washington, D.C.: U.S. Printing Office.

Lugenbeel, A. G. (1978). Final report of the planning, implementation, evaluation, and demonstration: A national model for the development of rural allied health manpower. U.S. Department of Health, Education, and Welfare, Public Health Service, Bureau of Health Manpower, Division of Associated Health Professionals, No. 1-AH-44114.

Methodist Hospital of Indiana Corporation. (1986). Add-a-comp. A program for the development of multiple competencies. Author.

National Commission on Allied Health Education. (1980). The future of allied health education. Washington: Jossey-Bass.

Raffel, M. L. (1984). The U.S. health system, origins, and functions (2nd ed.). New York: Wiley.

Sorkin, A. L. (1986). Health care and the changing economic environment. D.C. Health & Company.

# LEADERSHIP TRAINING TOPICS: PERCEPTIONS OF HIGH SCHOOL LEADERS OF HEALTH OCCUPATIONS STUDENTS OF AMERICA

Norma J. Walters

Associate Professor, and
Coordinator of Health Occupations, and
Graduate Program Office
Vocational and Adult Education
Auburn University
Auburn, Alabama 36849

James N. Wilmoth

Professor and Research Consultant
Vocational and Adult Education
Auburn University
Auburn, Alabama 36849

Jacquelyn P. Robinson, CHE, Ed.D.

Assistant Professor and Coordinator
Home Economics Education
Vocational and Adult Education
Auburn University
Auburn, Alabama 36849

# LEADERSHIP TRAINING TOPICS: PERCEPTIONS OF HIGH SCHOOL LEADERS OF HEALTH OCCUPATIONS STUDENTS OF AMERICA

Norma J. Walters[1]

James N. Wilmoth

Jacquelyn P. Robinson

Abstract: The general purpose of this study was to investigate needs for initial training for high school officer leadership roles in Health Occupations Students of America from student leaders in 27 schools having chapters in two districts from one southern state. The specific purposes were to: (a) determine demographic characteristics, (b) determine the factor structure of a 22 item Leadership Topic Questionnaire, and (c) identify topics to be included in leadership training programs. Factor Analysis produced a two factor, varimax rotated solution labeled as Operations and Formalities. The two factors clearly represent activities of leaders in student organizations. Advisors planning enrichment experiences for student leaders could consider topics of greatest need as manifested in corresponding, highly loaded endorsements.

[1]Norma J. Walters, R.N., Ph.D., is Associate Professor and Coordinator of Health Occupations and Graduate Program Officer, Vocational and Adult Education; James N. Wilmoth is Professor and Research Consultant; and Jacquelyn P. Robinson, CHE, Ed.D., is Assistant Professor and Coordinator, Home Economics Education, Vocational and Adult Education, Auburn University, Alabama.

Leadership development has been a problem for educators as well as for administrators in business and industry. Throughout the literature the topic of leadership challenges understanding in part due to variety in types and to the elusiveness of sound recommendations for qualified learning experiences for emerging leaders. In addition, even the term leadership is addressed under a variety of philosophical predispositions and orientations.

According to Eisenhower (Larson, 1968) "Leadership is the ability to decide what is to be done and then get others to want to do it" (p. 21). Therefore, "In an era of changing legislation, philosophies, and educational policies, the need for vocational-technical education leadership development will become increasingly visible" (Kraska, 1978, p. 524). This need may intensify for, according to Youngs (1983), "as the number of women and minorities in administration increases, the pressure increases on management to identify capable individuals, to accelerate their development to positions of greater responsibility, and to ensure that they receive quality career counseling" (p. 98).

However, the question of "what is leadership" has loomed on the horizon for many years. Leadership has been defined, by Binkley and Byers (1982), as "the ability and readiness to inspire, direct, and influence the actions of others" (p. 84). As stated by Brechtel, Wright, and Brechtel (1982), moreover, "we may be overlooking the most important resource for leadership ... [because] local high schools are full of potential leaders" (p. 29).

According to Binkley, et al. (1982): "Members in student organizations have many splendid opportunities for engaging in good democratic leadership" (p. 199). However, students may need training in

performing the duties expected of them as leaders. Seven student organizations in vocational education that are integral components of the curriculum in respective program areas and whose leaders may require leadership training in structural activities according to the United States Office of Education Policy include:

1. Future Farmers of America (FFA), Agribusiness Education
2. Future Business Leaders of America (FBLA), Business Education
3. Health Occupations Students of America (HOSA), Health Occupations
4. Future Homemakers of America (FHA), Home Economics
5. American Industrial Arts Student Association (AIASA), Industrial Arts Education
6. Distributive Education Clubs of America (DECA), Marketing Education
7. Vocational Industrial Clubs of America (VICA), Trade and Industrial Education

In these programs, training should be stressed in structural activities designed to provide leadership, educational, spiritual, and social growth. In addition, in support of AIASA leadership activities, Dixon (1980) reported that "the support and encouragement or lack thereof, by the school administration can often ensure the success or failure of any kind of school activity" (p. 52).

In Pennsylvania, thousands of youth have attended Summer Institutes to assist in training rural youth for leadership roles in agriculture. During this training, one student stated "I believe the best way to develop leadership skills is through practice and experience" (Evans, 1980, p. 34). Maher (1986) supported this

contention while revealing that New York State High School had developed a unique program in a leadership class to teach leadership through participation in individual, school, and community projects which involve two phases: self-analysis and school improvement.

Another study (Hohmann, Hamker, & Hohmann, 1982) particularly supportive of the needs of adolescents and reflective of a democratic style of leadership reported that "young people acquire leadership skills through group membership and the dynamics of cooperation" (p. 613). The training was based on the premise that successful group strategies help build a cooperative community. These strategies included building groups that were structured, active, purposeful, cooperative, with no distractions, in pursuit of communal activities, and providing opportunities for voluntary instructional work supervised by skilled and experienced staff. Leadership development included (a) drawing a diverse group of individuals into cohesive working relationships, (b) role modeling of staff functions, (c) fostering individual self-confidence and (d) experiencing varying degrees of leadership role complexity.

In response to a leadership crisis in 1982, Brechtel, et al., reported that one community college developed an exploratory leadership training program for high school students to identify and develop potential. The topics included in the training were:

1. Identification of individual leadership styles.

2. Relationship of leadership style to current role of the student leader.

3. Improvement of working relationship among advisors, student leaders, and school administrators.

4. Development of team building skills.

5. Planning and organization of school activities.

Need for Study

As revealed in the literature "Just as there are many styles of leadership, ranging from the autocratic to the democratic, there are many possible approaches to leadership training" (Hohmann, et al. 1982, p. 613). Seering (1978) reported that "Developing leaders . . . has been a challenge for many years and . . . is the number one area of concern" (p. 175). As revealed in "Building the Proper Learning Environment" (Voc Ed, 1980) topics in leadership courses such as nonverbal communication, importance of listening, and participation in youth groups influenced DECA membership dramatically. Hartley (1980) indicated that student service on governing boards contributed to their leadership development.

Six leadership traits as identified by Hall (1979) that are necessary to, and fostered by, editing a college newspaper included: (a) delegating authority, (b) developing subordinates, (c) motivating others, (d) being approachable, (e) commanding respect, and (f) bringing out optimal performances in others. Youngs (1983) reported that healthy and productive organizations required integrative leadership and that growth and development were facilitated by the presence of values such as trust, cooperation, consensus, caring, authenticity, purpose, support, mutuality, and reciprocity. Moreover, to the degree these characteristics were persistently reflected in leadership behavior and personality, they became role expectations for leaders.

In "VICA, Polishing the Image of Vocational Students" (Fitzpatrick, 1976) leadership training was also stressed and students were required to take part in meetings, make speeches, chair meetings, assist in solving problems at the group level, vote on issues concerning the organization and participate in skilled competition. In HOSA, students learn leadership skills at the local, district, state, and national levels through developing citizenship and competition skills. In 1987, HOSA reported a total of 21 competitive events in which students at both the secondary and postsecondary levels could participate (National HOSA Handbook, Section II, 1987).

As reported by Seering (1978), FFA provided training for officers and members benefiting them in achieving leadership goals. As revealed "it is becoming more important everyday for our . . . leaders to communicate effectively" (p. 179), as well as to demonstrate through goal setting and self-motivation, pride and enthusiasm during the upcoming years. In addition, HOSA reported that it had the distinction of having the largest number of student members service on its 21 member National HOSA Board of Directors than any other vocational student organization which should assist student members to develop leadership skills (National HOSA Handbook, Section I, 1987).

While studying high school females, Stiles (1986) found that greater self-confidence and leadership and the assumption of greater responsibilities in subsequent years were evident from leadership training. Fleishman (1969) reported that if the Leadership Opinion Questionnaire was used it could provide insights into participants attitudes toward leadership. In 1988, as a result of studying high school HOSA officers' leadership skills, Walters and Wilmoth (1988)

recommended that advisors administer the Leadership Opinion Questionnaire "to all student organization members" (p. 114). Walters and Wilmoth (1988) further recommended that "analyses of those scores may be helpful in suggesting candidates for student offices" and "for planning leadership training workshops" (p. 114). Another study (Walters, Wilmoth, & Pitts, 1988) reported (a) that "a more general knowledge of personality trait characteristics (of student officers) can possibly assist advisors in counseling students . . . [and (b) that] leadership styles and personality traits should be evaluated as a basis for organizing leadership workshops and other leadership experiences for students" (p. 22-23).

In surveying many topics that are included in leadership training programs, it appears that they may be classified into several categories. Bauer and Anderson (1985) recommended the following classification:

> (a) team building and commitment to training goals, (b) skills building (e.g., communications, awareness of group dynamics, decision making), (c) self-awareness (e.g., giving and receiving feedback, personal impact of the leader) and (d) issues and conflicts for leaders (e.g., sex roles, ethical, and moral concerns) (p. 16).

The same authors suggested, furthermore, that a core leadership development program be developed with a standard set of materials and methods of delivery, including role plays, discussion topics and other exercises pertaining to personal leadership style, to techniques for team building, and to training in communication skills. Beyond the core program, the authors indicated that other selections could be

provided as participants demonstrated a need for them. However, the question remains about "what specific topics should be included in future leadership training workshops for student officers in vocational student organizations, specifically in HOSA.

It has been stated that our ". . . future lies in the hands of our present and future . . . producers" and that our responsibilities as teachers and vocational advisors should "include training the . . . leaders of tomorrow" (Seering 1978, p. 175). Thus, the rationale for this study was to identify topics primarily for inclusion in HOSA leadership training programs which, secondarily, may also assist in training students in other vocational student organizations.

There is a need for helping young people discover their capacity to lead. Increasing pressure to identify capable individuals and to accelerate their development to positions of greater responsibility places a new challenge on advisors of student organizations to ensure that these members are receiving appropriate career counseling and leadership development.

## PURPOSES OF STUDY

Recognizing the need to provide leadership training programs for students in HOSA, which is a student organization that is an integral component of the Health Occupations Programs at the secondary, postsecondary, and collegiate levels, the purposes of this study were to:

1. Determine demographic characteristics of HOSA officers in selected chapters.

2. Determine the factor structure of a 22 item Leadership Questionnaire.

3. Identify topics of importance to high school HOSA officers for inclusion in high school leadership training programs.

## METHODOLOGY

### Population

The sample consisted of 115 students in 27 high schools in two school districts in a southern state. The two districts were randomly selected from a total of five districts in the state. The students were officers in local HOSA chapters.

### Instrumentation

The data were collected utilizing two instruments: (a) a 10 item demographic questionnaire, and (b) a 22 item leadership training topic questionnaire which consisted of topics perceived to be useful for leadership training with students elected to serve as HOSA officers. Data relevant to development of the instruments are presented in the following sections.

Demographic Questionnaire. The questionnaire to obtain the demographic information was developed by Walters and Wilmoth. The variables included were: (a) sex, (b) age, (c) grade level, (d) grade point average, (e) number of years in the health occupations program, (f) previous HOSA officer, (g) level(s) (local, state, national) of office as a HOSA officer, (h) office held at local level, (i) office(s) held in other student organizations and (j) type of office held in other student organizations.

Leadership Training Topic Questionnaire. The 22 item leadership training topic questionnaire was developed by Walters and Wilmoth to obtain information that could be used in training students for leadership positions as HOSA officers. The items were designed to

allow each student to check the topics in which they perceived that officers in a student organization should receive training in order to be an effective leader.

Validity and reliability. The topics included on the initial questionnaire were identified through a review of the literature. Once the initial list of topics was identified, a panel of health occupations educators (four teachers, a teacher educator, and a state specialist) reviewed the list, and made suggestions. There was 100% agreement on the appropriateness and clarity of the items ultimately included in the questionnaire. The reliability was .90 for all items.

## Data Analysis

SAS and SPSS* were the statistical packages of choice for transforming, scoring, and analyzing the raw data. Factor analyses, reliabilities for all training topic items and for Factor 1 and 2 items, and frequency and percentage distributions were calculated for the data.

## RESULTS AND DISCUSSION

### Demographic Data

The sample of 115 students were serving as officers in local HOSA chapters. About 91.3% were female; their ages ranged between 15-18 years; 85% (98) were enrolled in the eleventh and twelfth grade; a grade point average of B or C was reported by 82.7% (95); and 27% (31) were enrolled for their first year in health occupations in their present school with 63.5% having been enrolled for two to three years. All student officers (115) had served as a previous HOSA officers, and 50.46% (58) had as an officer in other student organizations in the office of president (Table 1).

Table 1

Demographic Data for Officers Serving in Local HOSA Chapters

| Demographic Variables | N | % |
|---|---|---|
| **Sex** | | |
| Male | 10 | 8.7 |
| Female | 105 | 91.3 |
| **Age** | | |
| 15 years | 14 | 12.2 |
| 16 years | 33 | 28.7 |
| 17 years | 55 | 47.8 |
| 18 or over | 13 | 11.3 |
| **Grade Level** | | |
| 9th grade | 2 | 1.7 |
| 10th grade | 15 | 13.0 |
| 11th grade | 37 | 32.0 |
| 12th grade | 61 | 53.0 |
| **Grade Point Average** | | |
| B | 18 | 15.7 |
| C | 77 | 67.0 |
| D | 20 | 17.4 |
| **Years in Health Occupations** | | |
| 1st year | 31 | 27.0 |
| 1 year | 11 | 9.6 |
| 2 years | 59 | 51.3 |
| 3 years | 14 | 12.2 |
| **Previous HOSA Officer** | | |
| Yes | 115 | 100.0 |
| **Officer in Other Student Organization** | | |
| Yes | 58 | 50.4 |
| No | 57 | 49.6 |
| **Position in Other Student Organizations** | | |
| President | 58 | 50.4 |

Level of Office Held by HOSA Officers

Of the 115 HOSA student officers, 13.9% (16) were Presidents (P); 21.7% (25) were Vice-Presidents (VP); 15.7% (18) were Secretaries (S); 13.0% (15) were Treasurers (T); 16.5% (19) were Historians/Reporters (H); and 19.1% (22) were other officers who were leaders in local HOSA chapters as shown in Table 2. Levels of office previously or currently held by the student officers included: (a) Local (L, n = 115), (b) State (S, n = 7), and National (N, n = 1).

Table 2

Level of Office Held by HOSA Officers

| | Level of Office | | | | | |
|---|---|---|---|---|---|---|
| Office | Local | | State | | National | |
| | N | % | N | % | N | % |
| President | 16 | 13.9 | – | – | – | – |
| Vice-President | 25 | 21.9 | 1 | 14.3 | 1 | 1.0 |
| Secretary | 18 | 15.7 | 3 | 42.9 | - | - |
| Treasurer | 15 | 13.0 | - | - | - | - |
| Historian/Reporter | 19 | 16.5 | 3 | 42.9 | - | - |
| Other | 22 | 19.1 | - | - | - | - |

Validity and Reliability for the Present Sample

Factor analysis (Rummel, 1970) was performed with SAS on the 22 item Leadership Topic Questionnaire to define its factor structure. The initial principal components matrix was varimax rotated and later,

Procrustes rotated. The best theoretical results were with the varimax roated solution.

The Factor Analysis procedure revealed 12 items had high loading on Factor 1 (items 1, 2, 7, 9, 10, 12, 14, 15, 17, 18, 19, and 20) and 9 items on Factor 2 (items 3, 4, 6, 8, 11, 13, 16, 21, and 22). Items loading most highly were content analyzed; accordingly, Factor 1 was labeled as Operations and Factor 2 as Formalities. These titles or scales represent activities that student HOSA officers experienced as leaders of the organization.

The variance explained by each factor is shown in Table 3. Reliabilities of the Leadership Training Topics Factor Scores for the 22 item instrument for this sample of student officers were .91 for Operations Factor; .78 for Formalities Factor; and .90 for all items.

Table 3

Variance Explained by Each Factor

| | Factor 1 | Factor 2 |
|---|---|---|
| Weighted | 5.478652 | 6.472123 |
| Unweighted | 9.062547 | 8.885715 |

Table 4 presents the precise loadings of the 22 items on Factors 1 and 2. The varimax rotated solution generally satisfied criteria of simple structure--just one item (number 5, official dress community activities) was not asterisked by SAS; however, the authors placed item 5 on Factor 2, the Formalities Scale. Table 5 portrays the frequency and percentage of endorsements of the 22 leadership training 128

Table 4
Loadings on the Varimax Rotated Factor Pattern Matrix for Student Officer Responses to the 22 Item Leadership Training Topics

| Item # | Leadership Training Topics | Factor 1 (Operations) | Factor 2 (Formalities) |
|---|---|---|---|
| 1. | History of organization | 76* | 51 |
| 2. | Orgnizatnl struct of student organization | 73* | 44 |
| 3. | Goals/purposes of organization | 52 | 80* |
| 4. | Constitution/Bylaws | 45 | 78* |
| 5. | Official dress | 63 | 61** |
| 6. | Creed, Motto, & Emblem | 48 | 82* |
| 7. | Conducting opening/closing ceremonies | 76* | 49 |
| 8. | Officer duties & assuming leadershp roles | 45 | 86* |
| 9. | Chapter finances | 78* | 40 |
| 10. | Organizational colors | 75* | 43 |
| 11. | Parliamentary procedure | 44 | 86* |
| 12. | Planning/assisting with conference | 79* | 41 |
| 13. | Participation in competitive events | 53 | 72* |
| 14. | Decision-making techniques | 67* | 59 |
| 15. | Cooperation | 80* | 45 |
| 16. | Communication techniques | 44 | 82* |
| 17. | Public relations | 77* | 45 |
| 18. | Motivational techniques | 74* | 44 |
| 19. | Fund-raising | 64* | 63 |
| 20. | Planning/conducting banquets | 73* | 37 |
| 21. | Planning/conducting community activities | 43 | 83* |
| 22. | Planning calendar of events | 48 | 75* |

Note: ** Item 5 did not load on either factor. Authors placed item on Factor 2.

Table 5

Frequency and Percentage of Endorsement of Leadership Training Topics Ordered on Decreasing Frequency (F = Formalities, O = Operations)

| Item | Leadership Training Topics | N | % |
|---|---|---|---|
| 1. | Officers duties and assuming leadership roles (F) | 102 | 88.7 |
| 2. | Parliamentary Procedure (F) | 101 | 87.2 |
| 3. | Goals/purposes of organization (F) | 98 | 85.2 |
| 4. | Creed, Motto, and Emblem (F) | 95 | 82.6 |
| 5. | Planning/conducting community activities (F) | 93 | 80.9 |
| 6. | Communication techniques (F) | 90 | 78.3 |
| 7. | Constitution/bylaws (F) | 86 | 74.8 |
| 8. | Planning calendar of events (F) | 82 | 71.3 |
| 9. | Fund raising (O) | 80 | 69.6 |
| 10. | Participation in competitive events (F) | 78 | 67.8 |
| 11. | Decision-making techniques (O) | 76 | 66.1 |
| 12. | Official dress (F) | 74 | 64.3 |
| 13. | History of organization (O) | 72 | 62.6 |
| 14. | Conducting opening/closing ceremonies (O) | 69 | 60.0 |
| 15. | Public relations (O) | 67 | 58.3 |
| 16. | Organizational structure of student orgnizatn (O) | 62 | 53.9 |
| 17. | Planning/assisting with conferences (O) | 58 | 50.4 |
| 18. | Cooperation (O) | 67 | 48.3 |
| 19. | Motivational techniques (O) | 55 | 47.8 |
| 20. | Chapter finances (O) | 54 | 47.0 |
| 21. | Organizational colors (O) | 54 | 47.0 |
| 22. | Planning/conducting banquets (O) | 46 | 40.0 |

topics and also depicts whether each topic loads as a "formality" or an "operational" activity. As noted, the top 10 items receiving the highest percentage were all activities classified as formalities of the organization with the exception of one item, fund raising. Leaders of HOSA providing training for leadership development may consider utilizing the topics as were perceived by the HOSA officers.

## CONCLUSIONS AND RECOMMENDATIONS

### Conclusions

The study was limited to two of the five districts in a southern state. The data indicated that of the 115 participating student officers, the majority: (a) were female, (b) were 16 and 17 years of age, (c) were enrolled in eleventh and twelfth grades, (d) were in second and third year in the health occupations program, (e) were previous officers in another student organization, (f) were former presidents in other student organizations, and (g) had a grade point average of B or C. Some HOSA officers had held an office at the state, and national levels.

In addition, Factor Analysis revealed a two factor varimax rotated structure for the 22 item Leadership Topic Questionnaire. These were titled Operations and Formalities and represent the activities that the HOSA officers experienced as leaders of the organization with reliabilities of .91 for the Operations Factor; .78 for Formalities Factor; and .90 for all items.

The 10 topics receiving the highest percentage of responses may be indicative of those topics that the HOSA officers perceive to be most important for training to be effective officers. These included:

1. officers duties and responsibilities;
2. parliamentary procedure;
3. goals/purposes of organization;
4. creed, motto, and emblem;
5. planning/conducting community activities;
6. communication technqiues;
7. Constitution/Bylaws;
8. planning a calendar of events;
9. fund raising; and
10. participation in competitive events.

In addition to these topics, Walters and Wilmoth (1989) suggested utilizing the LOQ and the MBTI for evaluating the leadership style and personality characteristics of HOSA officers prior to planning leadership training in order to better plan the activities.

Recommendations

Based upon the data analysis, "It is important for secondary schools to provide leadership development opportunities both for female and male students of health occupations curricula" (Walters & Wilmoth, 1989, p. 63). Therefore, the following recommendations are suggested:

1. Leaders of HOSA should consider utilizing the topics perceived important by the HOSA Officers for inclusion in effective leadership training.

2. The topics receiving the highest percentage of responses should be considered the most important for leadership training. If time is limited possibly the top five or 10 topics may be used in one workshop or leadership conference at the District or State levels. The other topics could possibly be included at the chapter or local levels.

3. Review the following studies by the authors since all utilized the same HOSA students to study certain aspects of leadership training. Leaders of HOSA should consider the findings and recommendations in planning leadership sessions. The first study, "Leadership Opinion Measures of Student Officers in Health Occupations Students of America" (1988) was conducted to determine the leadership styles of HOSA officers. Males were found to be higher on structure and females higher on consideration. However, males were lower on structure in tenth grade and higher in twelfth grade and as grade level increased, female scores on both consideration and structure tended to decrease. As level of office increased, both consideration and structure increased with national HOSA office being about 3 standard deviations higher for the single case. Therefore, one may ask the question, "are these findings indicative of the typical HOSA officer?"

The second study, "Personality Traits of High School HOSA Officers" (1988) was conducted to determine the personality traits of the HOSA officers. The officers from the sample were found to be type indicated as Extroversion/Sensing/Feeling/Judging. Approximately 60.6% were classified as Extroversion which may mean the officers could relate more easily to the outer world of people and things rather than to the inner world of ideas. Seventy-five percent were classified as Sensing, which may mean the officers would rather work with known facts. Fifty-eight percent were classified as Feeling, which probably suggests the officers based their judgments more on personal values than on impersonal analysis and logic. In addition, 68.7% were classified as Judging which probably means the officers preferred a

planned, decided, orderly way of life rather than a flexible, spontaneous way.

These traits may be possibly indicative of the typical member elected to an officer position in HOSA. The characteristics frequently associated with the E/S/F/J type indicator are talkativeness, popularity, warm-heartedness, cooperativeness, conscientiousness, and activeness in committee memberships. They also may need and may foster harmony.

The third study, "Leadership Attributes and Personality Preferences of High School Student Leaders of HOSA" (1989) was conducted to determine the level of relationship between leadership styles and personality traits as well as differential leadership attributes and/or personality preferences patterns for high school HOSA officers in local chapters. Strong canonical variates relating leadership styles to personality traits were found.

4. The "Leadership Opinion Questionnaire" (Fleishman, 1969) should be considered for use with the members of all HOSA chapters to assess their leadership style prior to planning sessions for training. For example, if a student was reported to have a high structural leadership style and a low consideration style, planning sessions could be included to assist the student to balance the style of leadership, and vice versa, depending upon the situation, especially, the members elected to officer positions.

5. The Myers-Briggs Type Indicator (Myers, 1962) or some other personality inventory should be considered for use with the members of all HOSA chapters to assess their personality traits prior to planning sessions for leadership development. For example, if a student were

classified as "Introversion" then training could be designed for the student to experience activities that would be beneficial for leadership development.

6. Other research studies should be conducted, both interstate and intrastate, for extensive exploration of leadership styles, personality traits, and leadership topics of other HOSA student officers in other chapters for identifying those high school experiences that have potential for development of student leaders. For example, the influence of type of training settings such as workshops or courses at the local, state, or national levels and a more precise definition of the relative efficacies of the various training topics could be quite helpful for future planning and programming.

## REFERENCES


Bauer, B. G. & Anderson, W. P. (1985). Leadership enhancement: The chancellor's leadership class. Journal for Specialists in Group Work, 10 (1), 14-19.

Binkley, H. R. & Byers, C. W. (1982). Handbook on student organizations in vocational education. Danville, IL: The Interstate Printers and Publishers, Inc.

Brechtel, J., Wright, F., & Brechtel, R. U. (1982). Leaders in high schools? Community and Junior College Journal, 2 (7), 29-30.

Dixon, J. D. (1980). Industrial arts students organizations. Journal of Industrial Teacher Education, 18 (1), 47-55.

Evans, D. E. (March 1980). Rural youth: Learning to lead. Voc Ed, 55 (3), 34-36.

Fitzpatrick, J. (1976). VICA - polishing the image of vocational students. Quarterly Outlook Quarterly, 20 (2), 16-19.

Fleishman, E. A. (1969). Manual for the leadership opinion questionnaire. Chicago: Science Research Associates.

Hall, S. K. (1979). Developing leadership traits. College Press Review, 19 (2), 48-49.

Hartley, J. (1980). They've learned to lobby. AGB Reports, 22 (3), 31-34.

Hohmann, M., Hamker, D., & Hohmann, C. (1982). Adolescence, 17 (67), 613-620.

Kraska, M. F. (1978). Application of leadership theories in vocational-technical education. Journal of Studies in Technical Careers, 2 (2), 524-529.

Larson, A. (1968). The president nobody knew. New York: Popular Library.

Maher, R. (1986). Learning leadership. Educational Leadership, 43 (4), 59-62.

National HOSA handbook, Section I. (1987). Ft. Worth, TX: National HOSA.

National HOSA handbook, Section II. (1987). Ft. Worth, TX: National HOSA.

Rummel, R. J. (1970). Applied factor analysis. Evanston: Northwestern University Press.

Seering, K. (February 1978). FFA - the key for training leaders for agriculture. Agricultural Education Magazine, 50 (8), 175-179.

Stiles, D. A. (1986). Leadership training for high school girls: An intervention at one school. Journal of Counseling and Development, 65 (4), 211-212.

Walters, N. J. & Wilmoth, J. N. (1988). Leadership opinion measures of student officers in health occupations students of America. Journal of Health Occupations Education, 3 (1), 97-115.

Walters, N. J. & Wilmoth, J. N. (1989). Leadership attributes and personality preferences of high school student leaders in Health Occupations Students of America. The Journal of Vocational Education Research, 14 (1), 49-67.

Walters, N. J., Wilmoth, J. N., & Pitts, C. A. (1988). Personality traits of high school HOSA officers. Journal of Health Occupations Education, 3 (2), 80-106.

Youngs, B. B. (December 1983). Identifying and developing prospective school leaders. NASSP Bulletin, 98-106.

# ISSUES IN DEVELOPING COMPUTER SOFTWARE FOR HEALTH OCCUPATIONS STUDENTS

Janice R. Sandiford

Associate Professor

Health Occupations Education, and

Assistant Dean

College of Education

Florida International University

Miami, Florida

# ISSUES IN DEVELOPING COMPUTER SOFTWARE FOR HEALTH OCCUPATIONS STUDENTS

Janice R. Sandiford

Abstract: Computer software for the various disciplines of vocational education is limited. In order to increase the software available for health occupations students, teachers must give serious consideration to becoming authors of computer software. This article discusses the design and development process in an effort to encourage teachers to author software for the health occupations. A list of authoring systems is provided.

Since the early 1980's, the microcomputer has become more popular especially in the education community. Young users in pre-kindergarten programs through mature users in colleges have found the microcomputer an essential tool. During the past decade, software developers have been striving to continually improve their offerings. (Colvin 1989). Software developers have flooded the market with a variety of educational programs, focusing on drill and practice, tutorials, problem solving strategies, and simulations for computer users grades K-12. Developers have also concentrated on applications programs for the business clients, many of which include tutorials to provide self-instruction for the user of specific programs. Some population groups,

Janice Sandiford, Ph.D., is Associate Professor of Health Occupations Education and Assistant Dean, College of Education at Florida International University.

the vocational and college student, have not caught the eye of a large number of software developers, consequently only minimal amounts of software are available for these student groups. What has been developed and created by college and university faculty is normally used on a local basis but rarely distributed. It was this dilemma that caused the League for Innovation in the Community College and the IBM Corporation to join together in an effort to assist college faculty to develop software for college students nationwide. As a 1988 award winner, the author would like to share the software development process in an effort to hopefully encourage others to consider the development of software for health occupations.

## DEVELOPMENT CONSIDERATIONS

Assuming that you are computer knowledgeable and would like to develop software, a critical first step in the development of software is to review existing software to determine what kinds exist and what topics are covered for the particular population being considered. In the health occupations area for instance, there are many software programs for the subject area of nutrition and diet analysis as this is a topic which lends itself easily to mathematical computation and data base strategy, a common, easily programmable concept. Anatomy, particularly the heart, is a subject frequently covered with software as graphics can be developed and inserted as needed into lessons adding interest for the user. As you review the topics which are covered by existing software, you will soon learn of topics for which you could write software and be successful in your marketing. Consider the subject matter and course content which cause your students the most difficulty in learning and concentrate your efforts in that area.

Included in the first step is to consider the type of instruction desired. Computer assisted instruction (CAI) accomplished by computer software is generally classified into games, drill and practice, tutorials, simulations, problem solving, and applications. Each type attracts a certain audience and presents a specific focus for the instruction. Not all instruction lends itself applicable to delivery of computers. The computer will never replace the instructor, however, much of what we teach can be introduced or reinforced by the computer. In health occupations education, teaching vocabulary and practicing dosage problems can be accomplished with drill and practice software. Decision making and treatments of choice are accomplished in simulations, a common strategy used in health occupations education. Such lends itself to computer assisted instruction. Once you have identified the need for the type of software you wish to develop and the topic of your software, you are well on your way to accomplishing your goal, writing software for health occupations students, your target population. Figure 1 attempts to present suggestions for types of software, the teaching strategy desire, and the Health Occupations subject that could be taught with CAI.

## SOUND EDUCATIONAL PLANNING

Good computer software development begins as good lesson development begins, identifying the instructional objectives. Novice software developers, like novice teachers, often get carried away with trying to teach too much to students in too short a period of time. A good computer lesson allows students choices in their learning sequence when possible, but delivers instruction in manageable chunks for the target population. A lesson taking 10 to 15 minutes to complete may be

appropriate for a high school student. A lesson of 45 minutes may be too long for some college students. Beginning your lesson development with objectives will provide you a blueprint from which you will

Figure 1

Comparison of Software Type and Instructional Strategy

| Type of Software | Strategy Desired | HOE Subject |
|---|---|---|
| Games | Learning fun<br>Understand concepts<br>Reinforcement<br>Decision Making | Review<br>Vocabulary<br>Problem Solving |
| Drill and Practice | Repetition<br>Reinforcement<br>Remediation<br>Individualized Instruction | Vocabulary<br>Dosage<br>Anatomy<br>Physiology<br>Math |
| Tutorial | New concepts, material<br>Rule application<br>Individualize Instruction | Dosage<br>Drugs<br>Ethics |
| Simulations | Experiencing<br>Application<br>Mental rehearsing<br>Corrective feedback<br>Illustrate concepts<br>Decision making<br>Hypothesis testing | Ethics<br>Patient Care<br>Priority setting |
| Problem solving | Experiencing<br>Applying theory<br>Analysis<br>Synthesis<br>Developing appropriate heuristics | Role Playing<br>Patient Care<br>Personnel problems |
| Applications | Professional uses of computer | Hospital systems |

develop each frame and each branch of your instruction. It is appropriate to include your objectives as a part of the lesson you develop. Complete, concise objectives will be invaluable as you progress in the development process. You will want to refer to your objectives frequently as you develop your lessons, it may even be necessary to revise them after you begin.

Consideration of the scope and sequence of your computer lesson becomes critical as you plan your instruction. A lesson that requires teacher intervention may be too broad in scope to be presented by the computer in one lesson and may require two or more lessons. On the other hand, a lesson too narrow in scope will lead to student boredom and lack of interest in learning by computer. In skill and knowledge development, the sequence of instruction must be addressed when instruction is to be delivered using the computer. A commonly known instructional strategy is to teach from the simple to complex, building upon previously learned knowledge. Such is true in software development as well. With CAI you can include a menu screen which will allow the user options for learning out of sequence, but you will also allow the user to select lessons as often as necessary to avoid having to repeat previously learned material if time does not allow for completing the lesson in one setting.

Once you have considered which lesson to convert to CAI, you will want to develop detailed lesson plans. You will want to begin with background information to ready the student for learning. You may wish to refer to previous lessons or to readings which the student may have pre-read. This would be the place to introduce new vocabulary and the objectives of the lesson. Each screen of information should be

presented in a pleasing manner as will be discussed later in this paper.

User control to advance to the next screen provides for varying reading rates of students. You will want to include examples and illustrations to assist the student in understanding the lesson. You will want to integrate learning screens with practice screens, question screens, and feedback screens. You will want to be sure your information is accurate. This step of development is no different than the one you use to develop traditional lessons, the major difference is you will not be able to see the student's face to see if they are understanding your presentation; you will not be able to revise your lesson plan when you see that it does not work. You must anticipate all levels of learners. "Poorly designed lessons can be tedious; well-designed lessons are intrinsically motivating. Good programs build in success, making it possible for students to achieve much and to see their progress" (Sloane, Gordon, Gunn, Mickelsen 1989, p. 28).

## PROGRAM DESIGN CONSIDERATIONS

As the computer industry matures, so do the theories of good computer software instructional design. User preferences have provided us with guidelines which we can use in developing our computer lessons. The major issues which will be discussed are that of: (a) screen design, (b) color, (c) interactivity (feedback, branching), (d) graphics, (f) audio, as well as (g) on screen help and instructions, and (h) error trapping.

### Screen Design

The primary interface between the learner and the computer is visual, consequently each screen of instruction becomes important to

the software author. In computer jargon, each screen is considered to be a frame. Frames should be developed with care considering: (a) the amount of information displayed on each frame, (b) the background, as well as foreground colors, and (c) user interaction. The screen layout affects the ease of user comprehension, as well as interest in using the CAI. Too much information on the screen is confusing, as well as inappropriate. "Software should provide for text that is neat, attractive, well-spaced, and formatted for easy reading. The quantity of material, size of type, spacing, and general appearance must also be appropriate for the intended user" (Sloane, Gordon, Gunn, Mickelson 1989, p. 35). Frames should not contain text from border to border, top, or bottom. The literature suggests (see Alessi & Trollip 1985, Fleming & Levie 1978, Hazen 1985, Heines 1984, and Merrill 1982) that the author prepare the screen layout so that it is pleasing and easy to read with no annoying features. These include text which is "well phrased, double spaced whenever possible, indented and formatted, centered and left justified, but always a consistent pattern, structured in natural eye movement sequences, consistently implemented and consistently placed functional screen areas, and makes use of message design principles like message clarity" (Hazen 1985, p. 22).

Numerous studies have found that reading from an electronic visual display unit is slower than reading from a printed page. (Gould, Alfaro, Barnes, Finn, Grischkowsky, and Minuto 1987). This difference was shown by Muter, Latremouille, and Treurniet (1982) to be as much as 28.5% slower. Gould, Alfaro, Finn, Haupt, and Minuto (1987) found that by decreasing the aliasing of characters (staircasing and jaggies of some low resolution displays) with higher quality monitors that this

slow reading phenomenon could be reduced to only five percent slower when compared to newspaper reading. Kolers, Duchnicky, & Ferguson (1981) suggested that 80 characters per line display required less effort to read than did 40 character display. In addition, double spacing rather than single spacing seemed more advantageous to the reader. Askwall (1985) found no significant difference in reading speed or comprehension when comparing video and print displays of short texts. Consequently a guideline by Friend and Miloy & Kovic (1984) of 100 words per exercise for adults should seem to be an appropriate guideline per frame.

Screen Color

The use of color has been studied by several researchers. Cushman (1986) found that negative contrast (dark colors on light background) contributed to visual fatigue while the positive contrast (light colors on dark background) did not. Mital and Ramanan (1986) found that for exposure times greater than 0.75 seconds, the positive contrast polarity resulted in greater recognition accuracy than negative contrast. Others studied color direct and found participants prefer color over monochrome (Tullis, 1981) but the use of it did not effect performance. Color has been found effective for highlighting (Heines 1984), as well as for cueing (Hativa and Teper 1988). Color also reduces monotony (Pfendler and Widdel 1986).

When considering color, the software author should know that research (Ohisson, Milsson, & Ronnberg 1981) found that white text on blue background was the most legible color combination. Matthews (1987) found that white, then green, then yellow text on black background was best for reading performance. These combinations also

produced the least amount of eye discomfort. He also suggested that poorest reading performance and greater amounts of eye discomforts were with the combinations blue on red, red on blue, and red or blue on black.

Interactivity

One difference between computer based instruction and teacher based instruction could be described as interactivity. In the typical classroom with teacher based instruction, the student has an opportunity to discuss the material to be learned with the instructor. In computer based instruction, the same does not apply. The software author must constantly be aware of this as software is being developed. Interactivity must be built in to the design. Such can be done through the use of frequent feedback and branching techniques.

Allowing the learner to select from a menu of lessons, one of which is quit, is one way of providing user control and interactivity. Being able to repeat lessons as often as necessary is an important user control. Giving the user control of the speed of instruction by using "Press return to continue" makes good sense in designing computer instruction. Decisions on which instruction follows a particular response is called branching. Branching provides for variety, as well as interactivity; the learner gets different instruction based upon each response, sometimes new learning, sometimes a reinforcement of learning, sometimes subtle by effective anticipated responses. Praise can be given, users can even get credit for a correct response even if the spelling is not correct. Included with interactivity is the user's ability to get help if instructions are not clear or to get out of a

lesson in the middle without having to shut off the computer. All these techniques are programmed into the software.

Carefully blending learning with checks on learning and with reinforcements is a science for good CAI authors. What must always be kept in mind is the more students can respond to instruction, the more likely they are to meet the objectives of the instruction. Although not as studied as color, interaction of learning and response screens are suggested to be appropriate at a 5 to 1 ratio. This does not negate using two or three question screens in a row, nor more than five text screens in a row as long as an appropriate ratio is maintained.

Graphics

The old adage "A picture is worth a thousand words," holds true for CAI as well. Educators have used a variety of aides in the delivery of instruction. These should be carried over the computer instruction you are designing. Interactive graphing, windowing, and animation differentiate the computer as a medium from most other media (Hazen 1985). In addition to pictures and drawings, the use of arrows, boxes, and illustrations are effective in emphasizing concepts. As a nonverbal mode of instruction, graphics can help build comprehension in areas where difficult and abstract concepts are being presented. "Graphics can demonstrate aspects of a concept (for example, house construction), visually depict concepts (like homologous anatomical structures), and clarify explanations (such as showing maps, equations, or distributions in math and geography) which might otherwise be difficult to explain" (Sloane, et al. 1989, p. 6). In addition, by adding color and animation, the author creates interest and realism to the instruction.

When considering the use of graphics, the author should also be aware that graphics should be used sparingly since good pictures are difficult to reproduce, as well as time consuming to display. (Friend & Milojkovic 1984). Hazen (1985) points out that well designed screens can be a motivating factor but the author must be careful to use screen formatting and graphics for readability and instructional purposes, not for decoration or cute effects. Knowing your target population and their preferences for learning should always be kept in mind.

Audio

In addition to graphics, the author should give consideration to the use of audio messages to the students. Again care must be used, however, audio cuing can keep the student paying attention to the instruction. Since this can be annoying when used for individual instruction in a classroom environment, the option of turning the sound off and on can eliminate this annoyance. Suggestions include using sound for reinforcement, focusing, or prompting students. When sound is used only for incorrect answers, a negative effect can be created for the student. Because sound can become tiresome when repeated constantly, full length songs or musical phrases should be avoided.

On-Screen Help

When the intention of the software is to be tutorial and used without an instructor immediately present, the author should include a way for the student to obtain help. Easy access to a help screen is essential, especially when the student is a novice computer user. Being able to toggle to and from the help screens without loosing their place in the instruction sequence is important for students. Finding themselves in another part of the lesson as a result of seeking help

will frustrate most students especially when they do not understand how they got there.

Error Trapping

Good instructional software must be field tested, evaluated and revised to be sure that information is accurate. It must also be tested to be sure that it is technically accurate. Inserting a sequence that will take the student out of the situation if they manage to select some strange key combinations in error, will help to eliminate unnecessary frustrations. Error messages should try to anticipate the kind of mistakes students might make such as using numbers instead of letters. Limiting the number of chances the student has to correctly answer questions to a reasonable two or three chances and then providing the correct answer will keep the student interested in the instruction and more likely to continue with the lesson.

There are many issues to consider when writing software and not all of them have been addressed in this article. Those that have been are done so to stimulate thinking and consideration.

## AUTHORING LANGUAGE

With the developmental and design characteristics considered, the next step is to select the programming structure to accomplish your CAI lesson. You have basically three choices: (a) a computer language such as BASIC (slow) PASCAL (faster) or C (sophisticated) which you must first learn how to code, (b) an authoring language such as PILOT (based on PASCAL) which has fewer structures to learn, or (c) an authoring system which is becoming a preferred means because of ease of use. Authoring systems do all necessary coding so that all the author needs to do is be concerned with the screen designs. The job of an

authoring language or system is to build, deliver, and administer the instruction (Becker, 1988). The one you select will probably depend on what time you have, your interests in learning a language and your money to buy what is available.

Although it is true that authoring systems are preferred by many authors, some of these are expensive, as much as $40,000 while other can be found for $200. Some require other software to be operated thus increasing the cost. Still others require royalities on any lessons distributed for profit and others require a presentation system available at an additional cost. It is essential to research this aspect of your CAI development with care. Once you have invested hours of programming time, you will not want to find the system you selected is limited or no longer supported. A selected number of authoring languages and systems are summarized in Figure 2.

## ACTUAL DEVELOPMENT

With planning out of the way, you are ready to begin the actual development of your lessons. The major emphasis of development must be the author having enough time to develop quality software. Although the figures vary, most authors believe they must have close to 200 hours of development time into a single hour of instruction. Roblyer (1988) reports that in using systematic design models, "the design stage typically takes three-quarters of the total development cycle" (p. 31).

Begin your development with flowcharts and storyboards. Knowing where you intend to go with your lesson and what it should look like as it appears on the screen will help you develop appropriate screens of instruction. Many of the authoring systems suggest or provide forms

for doing the storyboarding. If you are not going to do your own programming or keystroking, you must be very explicit in your flowcharts and storyboards to communicate correct information to the programmer. Refer frequently to your objectives. Writing objectives specifically enough for development into computer lessons is a skill. Review your work often to be sure that it flows correctly.

Wager and Gagne (1988) offer the following strategies for the development of computer lessons:

Gain attention.
Present the objective.
Recall prerequisites.
Present the stimulus.
Provide learning guidance.
Elicit performance.
Provide feedback.
Assess performance.
Provide for retention and transfer.

A review of existing software can give you some ideas about how your software should look. Don't become overly concerned with adding graphics and sound. These can be added at a later date. Concentrate your development on presenting your ideas through lessons on the computer that your students will enjoy. It is easy to become frustrated and discouraged, but it is important to stick to your plan. Scheduling quality time to work on your project on a regular basis will lead to completion of your goal.

## FINAL TESTING AND EVALUATION

This step of development is a critical one. Too often software is written that has not been thoroughly tested on the target population or by content experts. This reduces the effectiveness of the CAI. Reeves and Lent (1984) suggest that there are four levels of evaluation: (a)

Figure 2

Authoring Programs for Computer Software Development

| Program | Hardware | Cost | Comments |
|---|---|---|---|
| Create Lessons<br>Create Intermediate<br><br>Hartley Courseware Inc.<br>123 Bridge Street<br>Dimondale, MI 48821<br>(517)646-6458 | Apple/IBM | $ 30.00 | Simple to use<br>Very limited |
| Super Sofcrates<br><br>Simpac Educational Systems<br>Suite 11-C<br>1185 N. Main Street<br>Gainesville, FL 32601<br>(904)376-2049 | Apple | $ 300.00 | Excellent graphics<br>Easy to use |
| Authology<br><br>CEIT Systems Inc.<br>225 Charcot Avenue<br>San Jose, CA 95131<br>(408)943-9797 | IBM | | Support for InfoWindow, Sony View & Matrix Private Tutor Screen Capture Video interface |
| InfoWindow<br><br>IBM Corporation<br>411 Northside Pkwy.<br>Atlanta, GA 30357<br>(800)627-0920 | IBM | | Involves touch screen |
| ProPi<br><br>ASYS Computer Systems<br>104 Viewcrest<br>Bellingham, WA 98225<br>(206)734-2553 | IBM | $ 900.00 Basic<br><br>$1300.00 Complete | Requires PC/Pilot<br>Variety of lesson frame types<br>Graphics & Video |
| ACT III<br><br>Informatics Group, Inc.<br>80 Shield Street<br>West Hartford, CT 06110<br>(203)724-4040 | IBM | $ 400.00 | Price includes PC Paintbrush<br>Graphics & animation |

Figure 2 (Continued)

| | | | |
|---|---|---|---|
| Sam IV<br><br>Learncom A Division<br>of Sandy Corporation<br>1500 W. Big Beaver Rd.<br>Troy, MI 48080<br><br>(800)521-5378 | IBM | | As easy as using a word processor<br>Video interface |
| TEN CORE<br><br>Computer Teaching Corp.<br>1713 South Neil Street<br>Champaign, IL 61820<br>(217)352-6363 | IBM | $2000.00 | Interactive display using overlay<br>Simulate, animate demonstrate, train |
| TEN CORE Assistant | IBM | $ 250.00 | Menu Driven<br>For simple text-based lessons |
| ICON Author<br><br>Armtech Corp.<br>77 North Eastern Blvd.<br>Nashua, NH 03062<br>(603)883-0220 | IBM | $1195.00 | Uses Icons & pull down menus<br>Import video<br>Works under Microsoft Windows |
| Trainer Turned Author<br><br>Raster Sciences, Inc.<br>P.O. Box 3477<br>Longwood, FL 32770 | Apple/IBM | $ 119.00<br>299.00<br>485.00 | Tutorials<br>Steps you through process<br>Provides training |
| Private Tutor<br>Presenter<br><br>IBM Personal Computer<br>Software<br>Education Family<br>Sales & Service<br>P.O. Box 1328 C<br>Boca Raton, FL 33432 | IBM | $ 99.00 | Requires presentor program to use |
| Scenario<br><br>Techbyte Inc.<br>547 St. Thomas<br>Longueuil, Quebec<br>J4H 3A7<br>(514)670-9452 | Tandy | | Designed for non-programmer |

documentation, (b) formative, (c) evaluation of immediate learner effectiveness, and (d) impact evaluation. Walker and Hess (1984) suggest "Evaluation is not a single isolated state of product development; it is an ongoing, continual confrontation between the features of the program and the assessments of the people who create it, authorize, buy it, use it, read about it, and hear about it" (p. 204). They continue with the options for evaluation: (a) informal by developer, (b) systematic using formal criteria, (c) open-ended, (d) field trials, (e) formal, and (f) marketplace. In any event they suggest "Although it is definitely unwise for a developer to ignore market preferences, it is not necessary to pander to the market's current tastes. It is possible, though risky, to try to lead and shape consumers' tastes by offering them quality products they may not yet appreciate. Good evaluations can give both developer and consumer confidence that a new or unorthodox product is truly effective" (p. 214). As a result of ongoing evaluation you will be constantly revising your software, but most good teachers do that with their lesson plans.

## SUMMARY

This article has attempted to summarize some of the considerations of developing software for health occupations students. Health Occupations Education teachers are excellent resources and truly committed professionals. Through this group, it is possible to visualize the development of quality software for the education of our students.

REFERENCES


Alessi, S. M. and Trollip, S. R. (1985). Computer-based instruction: methods and development. Englewood Cliffs, NJ: Prentice-Hall.

Askwall, S. (1985). Computer supported reading vs. reading text on paper: A comparison of two reading situations. International Journal of Man-Machine Studies, 22, (4), 425-439.

Becker, R. S. (1988). How to evaluate CBT authoring systems. The 1988 CBT guide. Boston: Weingarten Publications, pp. 2-4.

Colvin, L. B. (February 1989). An overview of U.S. trends in educational software design. The Computing Teacher, 16 (5), pp. 24-28.

Cushman, W. H. (1986). Reading from microfiche, a VDT, and the printed page: Subjective fatigue and performance. Human Factors, 28 (1), pp. 63-73.

Fleming, M. and Levie, W. H. (1978). Instructional message design. Englewood Cliffs, NJ: Educational Technology Publications.

Friend, J. and Milojkovic, J. D. (1984). Designing interactions between students and computers. In Walker, D. F. and Hess, R. D. (Ed.), Instructional Software: Principles and perspectives for design and use. (Belmont, CA: Wadsworth Publishing Company, pp. 143-150.

Gould, J. D., Alfaro, L., Barnes, V., Finn, R., Grischkowsky, N., Minuto, A. (1987). Reading is slower from CRT displays than from paper: Attempts to isolate a single-variable explanation. Human Factors, 29 (3), 269-299.

Gould, J. D., Alfaro, L., Finn, R., Haupt, B., and Minuto, A. (1987). Reading from CRT displays can be as fast as reading from paper. Human Factors, 29 (5), 497-519.

Hative, N. and Teper, A. (1988). Differential effectiveness of three color treatments in learning geometric concepts via computer-guided teaching. Journal of Educational Computing, 4 (3), 303-320.

Hazen, M. (November 1985). Instructional software design principles. Educational Technology, 18-23.

Heines, J. M. (1984). Screen design strategies for computer assisted instruction. Bedford, MA: Digital Press.

Kolers, P., Duchnicky, R. L., and Ferguson, D. C. (1981). Eye movement measurement of reliability of CRT displays. Human Factors, 23 (5), 571-577.

Matthews, M. L. (1987). The influence of colour on CRT reading performance and subject comfort under operational conditions. Applied Ergonomics, 18 (4), 323-328.

Merrill, P. F. (1982). Displaying text on microcomputers. In D. H. Jonassen (Ed.), The technology of text: Principles for structuring, designing, and displaying text (Volume One). Englewood Cliffs, NJ: Educational Technology Publications.

Mital, A. and Ramanan, S. (1986). Results of the simulation of a qualitative information display. Human Factors, 28 (3), 341-346.

Muter, P., Latremouille, S. A., & Treurniet, W. C. (1982). Extended reading of continuous text on television screens. Human Factors, 24 (5), 501-508.

Ohisson, K., Milsson, L. G., and Ronnberg, J. (1981). Speed and accuracy in scanning as a function of combinations of text and background colors. International Journal of Man-Machine Studies, 14, 215-426.

Pfendler, C. and Widdel, H. (1986). Vigilance performance when using colour on electronic displays. Perceptual and Motor Skills, 63 (2), 934-944.

Reeves, T. C. & Lent, R. M. (1984). Levels of evaluation for computer-based instruction. In Walker, D. F., and Hess, R. D. (Ed.), Instructional Software: Principles and perspectives for design and use. (pp. 188-203). Belmont, CA: Wadsworth Publishing Company.

Roblyer, M. D. (1988). Fundamental problems and principles of designing effective courseware. In D. H. Jonassen (Ed.), Instructional Designs for Microcomputer Courseware. Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.

Sloane, H. N., Gordon, H. M., Gunn, C. & Mickelson, V. G. (1989). Evaluating educational software: A guide for teachers. Englewood Cliffs, NJ: Prentice-Hall.

Tullis, T. H. (1981). An evaluation of alphanumeric, graphic, and color information displays. Human Factors, 23, 541-550.

Wager, W. and Gagne, R. M. (1988). Designing computer-aided instruction. In D. H. Jonassen (Ed.), Instructional designs for microcomputer courseware. Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.

Walker, D. F. & Hess, R. D. (1984). Designing interactions between students and computers. In Walker, D. F. and Hess, R. D. (Ed.), Instructional Software: Principles and perspectives for design and use. PP. 204-215. Belmont, CA: Wadsworth Publishing Company.

ARTICULATION PROGRAM

Martha Malinchok

Coordinator

Practical Nursing Program

Schuylkill County AVTS

Frackville, Pennsylvania

## INTRODUCTION

The present health care system is in a state of monumental change as it responds to the impact of multiple social forces. These forces include the nursing shortage, an increase in the elderly population, spiraling health costs, federal mandates, and health care provider role changes.

National trends along with state legislation have struggled to clearly identify the practice roles of the registered nurses (RN) and licensed practical nurse (LPN). Standardized training and certification/licensure provide guidelines for practice of both levels of nursing. Harper (1986) noted that federal and state legislation is underway to standardize the training and certification of Nursing Assistants to assure safety and quality of care and to monitor the delivery of care. With these levels of nursing care career options available, the changing roles and delineation of responsibilities of nursing staffs clearly call for new and innovative programs to improve the mobility of nursing personnel from one level to another.

The concept of an articulation program in nursing education is not new, although articulation between the nurse assistant level and the practical nurse level is a concept of the 1980's. Career ladder mobility is also a means of addressing one aspect of discontent among nursing care providers. Historically, the nursing assistant has been a "dead end" career option. All candidates for nursing (i.e., LPN or RN) were required to begin career training at base level one--discrediting months or even years of nursing care experience. There are currently

---

Martha Malinchok, Coordinator, Practical Nursing Program, Schuylkill County AVTS, Frackville, PA.

more than 300 different health care occupations with at least 25 subject to mandatory licensure. Many of these health care occupations share a common body of basic knowledge and competencies. Lateral and vertical career mobility should be a priority in planning for future health care providers. The model presented here offers once cost effective, time efficient, effort to respond to the current nursing shortage while ensuring the quality of health care.

## ARTICULATION

Articulation has many different meanings. The Dictionary of Education defines articulation as the organization of classroom instruction, co-curricular activities, and other independent and interrelated services of the local school system so as to facilitate the contiguous and efficient educational progress of students from grade to grade and from school to school. The interrelation of the school's instructional program with the education programs from other available institutions or work opportunities (Good, 1973).

Lenburg (1975) applied articulation to program structures which provided a junction point from which the learner could spin off or make a smooth transition to a higher level of career development. Career ladder concept, upward mobility, articulation, and open curriculum are frequently used interchangeably. The differentiation will be more distinct with the use of these terms in this presentation. The concept of an open curriculum provides multiple entry and exit points. The learner has flexibility in scheduling and is not constrained by time limitations.

The simplest concept of articulation is that of building upon previously learned content. Articulation can take place between two

programs at contiguous levels within a single program or between two institutions with programs at sequential levels. The building upon concept is also seen as a one plus one or two plus two plan. Curriculum is planned with specific sequencing of courses or programs where prerequisites are established to be met before the student can move to subsequent courses (Stevens, 1981).

Career mobility designates movement from one level to another in an occupational field. It refers to a range from the lowest to the highest levels of preparation. It usually refers to movement in an upward direction, although it may also designate horizontal mobility. Vertical articulation programs with interlocking and interrelation of the successive levels of education facilitate the continuous, economical, and efficient career mobility for the learner (Lenburg, 1975).

Prior to the 1960's, nursing programs were terminal career development systems with a single entry point and a clearly defined completion or exit point. The nurse practitioner completing a program of study at one level was required to enter and begin a program of study at the very beginning for the next level. In the 1950's and 1960's four levels of nursing education were clearly identified and supported by health care agencies, consumers, and most nursing and allied health organizations.

Curriculum designs in response to the concept of career mobility were innovative and varied. In some cases a core curriculum was identified with upper level specialization curricula. In other cases the basic skills necessary for entry level to a nursing career were identified and credentialed. The learner had the option to exit at

this point or to move to a higher level of career development. Upward mobility enabled the learner to climb the career ladder to more responsibility, higher pay, more respect, career advancement opportunities, and a greater level of self actualization. The emphasis in upward mobility was from LPN and RN and from diploma and associate degrees in nursing to baccalaureate degrees in nursing.

Studies done in 1969-70 by Allied Health Professions Projects, Division of Vocational Education, University of California at Los Angeles, identified 306 tasks performed by nurse aides (NA). Of these, 60 percent were found to be performed by all groups and levels of nurse practitioners. Therefore a baseline education can be developed with articulation and upward mobility from NA to RN with advanced graduate degrees.

Many problems and barriers to articulation have been cited. One problem with the articulation model of building on a sequence of previous learning is the assumption that prerequisites must be learned in a formal program of study (Stevens, 1981). A fundamental problem confronting the overall career mobility movement is the age old one of <u>how to do it</u> (knowledge testing and performance testing). Methods for validation of prior learning are a major concern. Validating the quality of prior learning while maintaining appropriate clinical and academic competency are essential to effective career mobility. Previous learning can take place through experience. Experiential learning denotes competencies that are developed either prior to or during enrollment in a curriculum, but always include activities that make a direct contribution to the student's educational progress. The central problem is how valid assessment of such learning can be made

and at the same time enable the student to meet acceptable criteria of performance.

Consistency of policies and elimination of politics from articulation must be a priority among nurse educators. Today's major political conflict is the debate over articulation of associate degree to baccalaureate degree programs. In general, the debate centers on the differences in philosophies of the two programs. This conflict is echoed whenever articulation development is undertaken.

Advantages of articulation from secondary health occupations education programs, to LPN or RN, include student profiles characterized by (a) confirmation of career decisions based on educational experiences, (b) completion of academic prerequisites, (c) comprehensive understanding of the current health care system, and (d) competency of entry-level skills making students employable. With this background, students are highly motivated and committed to their career goal (Langley & Raynor, 1986).

Parsons (1980) reported that in articulation programs, all students are better served, programs are made more efficient and frequently have higher enrollment, and nursing faculty develop better working relationships with secondary education and higher education colleagues. In 1970, NLN adopted a statement called the "Open Curriculum in Nursing Education." In part it reads:

> An open curriculum in nursing education is a system which takes into account the different purposes of the various types of programs but recognizes common areas of achievement. Such a system permits student mobility in light of ability, changing career goals, and changing aspirations. It also

> requires clear delineation of the achievement expectations of nursing programs, from practical nursing through graduate education. It recognizes that possibility of mobility from other health-related fields. It is an interrelated system of achievement in nursing education with open doors rather than quantitative serial steps. An open curriculum is one which incorporates an educational approach designed to accommodate the learning needs and career goals of students by providing flexible opportunity for entry into and exit from the educational program and by capitalizing on their previous relevant education and experience. (Lenburg & Johnson, 1974, p. 266).

Articulation provides the recognition of learning, regardless of the source, while moving the individual along the continuum of lifelong learning. In spite of continuing controversy, the concept of articulation in nursing education has received strong endorsement by nursing educators and educational institutions. Thomas and Thomas (1988) state that:

> for nurses desiring either advanced educational certification or changes to new practice settings and roles, advance placement should provide the continuing education vehicle for shortening educational obligations and making their goals more attainable. In such cases, encouraging nurses to take advantage of their previous education to help them gain additional professional status is highly desirable and recommended. (p. 107).

There has been an interest in career ladder education in nursing since the early 1970's. Currently there is little information documenting the specific outcomes and effectiveness of open curriculum/career ladder programs. Whether it is because the programs are not in effect long enough or there is a lack of reporting, more research is needed to identify the best modalities. One measure of status used is the availability of career ladder options. Since the interest in upward mobility in nursing is influenced by a variety of factors such as burnout, frustration, need for professional recognition, and higher wages, as well as the fear of mandated college degrees for entry-level practice, the measurement of outcomes will be equally varied.

In an articulated program which fosters career ladder mobility, entry behaviors comprise the sum total of skills and knowledge already possessed by the learner upon entry into the organization. Objective validation of such knowledge and skills makes it possible to design a critical training path for achieving the additional competencies required for the subsequent level of the career ladder (del Bueno, 1975).

Aides and orderlies enroll in LPN schools in numbers that are nearly double those in RN schools. This suggests the LPN schools may have a unique opportunity to provide an open curriculum service to a group that is a <u>natural</u> for building a career on experience. Aides and orderlies participate in many phases of the delivery of nursing care; frequently they learn on-the-job rather than formal training programs. If advancement in a career, largely on the basis of experience, is a feasible approach to open curriculum in nursing, then the successful

completion of an LPN program and subsequent licensure of aides and orderlies would tend to validate that principle (Johnson, 1975).

Historically, Pennsylvania has prepared and continues to educate more than 11 percent of the national nurse power. The concept of articulation has been implemented in a variety of nursing education curriculum designs and in a variety of educational settings in Pennsylvania.

## ARTICULATION MODELS

A variety of types of articulation programs have been identified by Lenburg (1975) and Martin and Thompson (1985). The list includes:

1. Cross registration/consortium agreements. Student can be completing high school requirements and at the same time achieve college credits, i.e., vocational course units or English units.

2. Bridge experience--summer or weekend programs. Student is required to attend sessions which fill in any theory/experiences included in level I program prior to student's full-time matriculation in a level II program.

3. 1 + 1 or 2 + 2. Student receives full credit for 1 or 2 years of education at institution A and continues education at institutions B with no loss of time and/or credits necessary for completion of career goals.

4. Competency articulation. Student demonstrates learned competency as achieved through experiential learning or attendance in a planned curriculum. The student is then placed at the level of the curriculum which enables continued upward progression.

5. Assessment of prior learning. Student demonstrates achievement of theoretical concepts by successful completion of

tests--institutionally prepared tests or selected standardized tests such as CLEP.

6. Cooperative education as articulation with work world. Student is granted credit for participating in work related to the curriculum. These work experiences are selected and supervised by the educational institution.

7. Advanced placement model. Student is granted credit for a segment(s) of a curriculum based on tests and practicum to validate prior learning. Challenge examinations, transitional or bridge courses may be required to assist the student to make a smooth transfer from one curriculum to another, from one institution to another, etc. This enables lateral, as well as vertical career mobility.

8. Licensure-based model. Course builds on previous learning and success implied by licensure.

9. Multiple-sequence model/career ladder model. Student has options to enter and exit at various points in the curriculum. Re-entry encouraged within specified time periods. These programs can be administered in one institution or can be developed with a consortium of several educational institutions: Lateral, as well as vertical articulation is available.

10. Assessment model/external degree programs. Candidates, regardless of background, may enroll in the external degree program for assessment of knowledge and skills to meet established degree requirements. Learning can take place within the educational institution, on the job, through independent study, or in any combination of approaches.

The National Center for Research in Vocational Education studied successful articulation programs across the nation. Identified were three most common forms of programs:

1. The 2 + 2 which further categorized time-shortened, technical preparation, and advanced skills formats. The most widely used model of articulation was awarding advanced placement for competency.

2. The core curriculum approach which gives secondary students strong foundation in science, mathematics, computer skills, reading, and writing. Students then move to technical skill development at postsecondary level.

3. The 2 + 2 approach which closely integrates 11th through 14th grade. Employers have strong input and frequently collaborate with work/study programs often referred to as cooperative programs. Many states have legislated mandates for articulation with statewide systems developed such as Arizona, Florida, Illinois, Texas, and Wisconsin (Warmbrod & Faddis, 1987).

Replication or combinations of these models are in effect in Pennsylvania. Most programs are patterned as 1 + 1 or 2 + 2 models or the Advanced Placement Model. Credits granted are pre-established and documented by licensure or certification. Credit may also be granted by successful challenge examination.

As evidenced by the review of literature, existing articulated programs with multiple entry and exit levels are not only feasible but are economically and occupationally beneficial to both the practitioner and the industry. With collaboration between health care agencies and educational programs, the student continues to work at an even level while pursuing a higher level of education and expertise. The service

agency is managing cost containment measures with savings on orientation and staff development. When the agency collaborates with the educational program to finance student education, or provide clinical practice sites, the investment is another cost effective measure which provides quality supervised health care--a most valuable commodity.

ARTICULATION PROGRAM MODEL--NURSING ASSISTANT TO LPN

The articulation model recommended in this paper combines concepts from several of the above types of programs reviewed. Basic entry level competencies are defined for the nursing assistant and for the practical nurse (see Appendices 3 and 4). The prescribed curriculum is sequentially arranged to enable the learner to achieve these competencies. Learning is facilitated by progression from simple to complex and from task oriented competencies to critical incident technique performance. Theory and clinical practicum are correlated to provide experiential learning to reinforce theoretical concepts. The State Board of Nursing mandated twelve-month program of study for practical nursing is divided into four equal terms of twelve weeks each. Theory and clinical practicum to attain the basic entry level competencies for nursing assistant are taught in the first term. An individual can attain these identified competencies by attendance at a variety of planned programs, on-the-job experiential learning, or a combination of both. Advanced placement option is offered to candidates who can validate the established basic competencies for Term I. All students, generic or advanced placement candidates, can be awarded certification as a nursing assistant upon successful completion of Term I. Students will have the option to continue to Term II of the

practical nursing program or to exit with job marketable skills and a nursing assistant certificate to the work world. As mandates and procedures are defined for Pennsylvania State Competency Evaluation and Registration, these Term I completers will be provided the opportunity to meet the defined criteria.

Based on the above needs, trends and articulation models, the proposed model is a combination of Advanced Placement Model, Licensure (Certification) Model, Competency Articulation, and Bridge Experience. Candidates are enrolled under the following categories: (a) no prior formal nursing education or nursing care experience, (b) nursing assistant certification from an approved program in Pennsylvania or with out-of-state comparable credentials, (c) prior formal nursing education of not less than three months (including supervised clinical practice), and (d) medical specialist with prior theory and practice within the United States Armed Services.

Candidates can apply for enrollment in the entire twelve month program or for advanced placement based on prior certification and competency level. An orientation or bridge session is scheduled at the beginning of Term II. Students must attend nine months of the program in order to qualify for the graduation diploma and to qualify for Pennsylvania licensure examination. Providing an accelerated program with efficient upward mobility will encourage residents of the area to respond to local health care needs while attaining career satisfaction in the nursing field.

NURSING ASSISTANT TO PRACTICAL NURSE

Master Plan of Educational Program

PRACTICAL NURSING

The program of study is divided into four (4) terms consisting of theory and clinical experience. Subjects and time allotments in both theory and practice exceed the minimum requirements as recommended by the Pennsylvania State Board of Nursing.

TERM I -- 12 WEEKS

THEORY

I. Orientation/Study Skills--30 hours

A presentation of the program of studies, rules, and regulations with a review of the Student Handbook provide the new student with insight into his/her role and responsibilities. A brief "Study Skills" course is presented using guidelines of an assigned workbook. The student is oriented to the health delivery system and preliminary preparation for Nursing Assistant certification.

II. Nursing I--60 hours

A study of theory and related clinical practices of basic bedside nursing care. This course emphasizes the development of skills in basic care procedures, patient observation, effective communication, and effective teaching to help achieve patient, family, and community health. Normal nutrition is incorporated as it relates to basic needs of the adult patient. Related clinical experience is scheduled to correlate theory and practice.

III. Introduction to Geriatrics--24 hours

A study of concepts, theories, and characteristics of aging. The student is introduced to the programs available to help the elderly

maintain quality of life. Death and dying are presented with emphasis on the role of the care provider as he/she relates to the client and significant others. The grieving process is reviewed as it relates to self and others.

IV. Anatomy and Physiology--76 hours

An introduction to the principles of chemistry, microbiology, and physics as they related to the body as a whole. A study of basic anatomy and physiology of all systems of the body are presented by lecture and with a study of models, and audiovisual reinforcement. Computer assisted instruction programs are available for additional reinforcement.

V. Personal and Vocational Relations I--30 hours

This unit of study provides insight into basic mental health concepts as they relate to the total health of students and patients. Theories of crisis intervention are presented. A brief history of nursing is also presented as part of this unit. Communication skills and specific related documentation skills needed in health care are introduced.

VI. Pharmacology I--18 hours

Basic math review and dosage and solutions. This unit of study is presented with computer assisted instruction to provide the orientation to basic computer technology and to prepare the student for medication administration skill development.

CLINICAL EXPERIENCE

GERIATRIC NURSING

Supervised nursing experience is scheduled at Rest Haven Nursing Home Facility. This is scheduled three days per week during the last

five (5) weeks of Term I for a total of 120 hours. These hours include pre- and post-clinical conferences to assist the student to correlate theory and clinical practicum. Field trips and special conferences are scheduled to provide insight into community living and other aspects of geriatric care.

SUMMARY--TERM I

Theory - 238 hours
Clinical experience - 120 hours
Field trips and special conferences - 12 hours
Total - 370 hours

Objectives

Upon completion of Term I the student who has had constant/close supervision will be able to:

- provide safe basic nursing care.
- recognize overt patient needs and/or problems.
- utilize effective communication skills with patients, their significant others, and staff.
- apply the nursing process in nursing care assignments.
- demonstrate appropriate habits of good personal health, hygiene, and grooming.
- show kindness and respect for patients' dignity.
- recognize important of professional confidentiality.
- portray acceptable behavior in classroom and clinical nursing.
- practice proper body mechanics for self and others.
- differentiate between normal and abnormal physical and emotional human responses.
- use the nursing care plan in nursing care assignments.
- demonstrate awareness of functions of para-professionals and health agencies in total health maintenance.
- recognize role of the practical nurse as a member of the health team.

- begin to identify specific career goals.
- display responsibility for personal and professional growth through:
  - cooperative relationships.
  - honesty in testing.
  - acceptance and utilization of constructive criticism.
  - reporting errors and omissions in patient care assignments.
  - personal accountability.

Student will be provided the opportunity to meet Pennsylvania certification requirements for nursing assistant and sit for the certification examination.

TERM II--12 WEEKS

THEORY

I. Orientation/Bridge Course--18 hours

This unit of study is divided into the following areas: Organization of program, rules and regulations (Student Handbook review), overview study skills, health care concepts, health care team and review--anatomy and physiology. A supervised clinical laboratory (12 hours) is scheduled to validate basic nursing skills. This unit of study will assist advanced placement students to be integrated into the program at this level. Students enrolled in the Practical Nursing Program through Term I will find the review and update reinforces data covered to date. All students are required to attend Bridge Course unless exceptional performance in Term I enrollment merits an exemption.

II. Nursing II--60 hours

A study of theory and clinical practice of advanced nursing care. Course emphasizes the principles underlying procedures, development of

skills in therapeutic measures, and preparation of the patient for diagnostic tests.

III. Medical/Surgical Nursing I--62 hours

Units: Cardiovascular, Orthopedics, and Gastroenterology. The study of nursing care of adults will include common symptoms, treatment regimes, and nursing care related to specific diseases and disorders of the systems identified. Treatment and health maintenance will include related pharmacology and diet therapy.

Promotion

Term I is successfully completed when the student has:

- had satisfactory attendance and has completed all assignments.
- completed and passed all required subjects and examinations.
- been evaluated by the nursing instructor as a satisfactory basic level practitioner.
- evidenced motivation, progress, and sincerity of intention as evaluated through guidance sessions and/or performance.

IV. Pharmacology II (Integrated)--20 hours

Drug classifications used in treatment regimes of the identified diseases/disorders are presented. Students are taught ususal modes of administration, usual dose, expected effects, side effects, and nursing responsibilities.

CLINICAL EXPERIENCE

MEDICAL/SURGICAL NURSING

Supervised medical/surgical nursing experience is scheduled at good Samaritan Hospital. This term usually begins with and ends with a full class week. Clinical experience is scheduled three (3) consecutive days during ten (10) weeks of this term for a total of 240

hours. Field trips and special clinical conferences are scheduled to reinforce medical/surgical nursing component.

Theory - 178 hours
Clinical experience - 237 hours
Total - 415 hours

Objectives

Upon completion of Term II, the student who has had moderate supervision will be able to:

- continue to apply new concepts and skills to provide safe, effective patient care.
- utilize principles of related sciences when performing nursing procedures.
- assess obvious physical, social, spiritual, and nutritional needs of patients and apply the nursing process in meeting the identified needs.
- utilize the concepts of normal growth and development when using the nursing process for identifying patients with more complex nursing problems.
- assist in care of patients with more complex nursing problems.
- demonstrate safe, aseptic technique in nursing care treatments.
- contribute to the development of nursing care plans by relating observations on assigned patients.
- practice principles of professional accountability and confidentiality, while interacting with staff, patients, and significant others.
- function within the role of student practical nurse as a member of the hospital.
- demonstrate communication skills on a therapeutic level.

- assist with health teaching, prevention, and rehabilitative measures.
- demonstrate an awareness of community health and welfare agencies which provide special services.
- portray acceptable behavior in classroom and clinical setting.

TERM III--12 WEEKS

THEORY

I. Medical/Surgical Nursing II--48 hours

Units: Respiratory, endocrine, integumentary and gynecology. The study of nursing care of adults will include common symptoms identified. Treatment and health maintenance will include related pharmacology and diet therapy.

Promotion

Term II is successfully completed when the student has:

- had satisfactory attendance and has completed all assignments.
- completed and passed all required subjects and examinations.
- submitted records of care studies and has actively participated in patient centered conferences with necessary reports and drug cards completed.
- been evaluated by the nursing instructor as a satisfactory basic medical/surgical nursing practitioner and the student demonstrates ability to function under moderate supervision as a member of a health team in care of subacutely ill or convalescent and long term patients.
- evidenced motivation and progress evaluated by guidance sessions and performance.

II. Pharmacology II (Integrated)--20 hours

Drug classifications used in treatment regimes of the identified diseases/disorders are presented. Students are taught usual modes of administration, usual dose, expected effects, side effects, and nursing responsibilities.

III. Family Centered Health Care--60 hours (Clinical Field Trips--16 hours)

This course deals with the normal physical, psychological, and social patterns of development from conception through senescence. Included are theory related clinical experiences in the care of mothers and newborn infants. Physiology and mechanics of reproduction, pregnancy, antepartum, parturition, and post partum are presented. Psychosocial aspects of patient care and the concept of the family unit are emphasized. Community health agencies are presented as they relate to various patient care needs. Applied diet therapy and drug therapy are included. Students are scheduled to attend birth in classes and family planning clinics to provide an opportunity for community health service and patient teaching.

IV. Community Health Concepts--18 hours

An introduction to health care programs in the community. Health screening van and bloodmobile participation provide an opportunity to assist with health teaching. An observational home health care experience is scheduled (18 hours).

CLINICAL EXPERIENCE

FAMILY CENTERED HEALTH CARE

AND

MEDICAL/SURGICAL NURSING

Supervised clinical experience is scheduled at the Good Samaritan Hospital. During this term the students will rotate through the clinical units related to family centered health care. Students are assigned to labor and delivery post partum, newborn nursery, pediatrics, clinics, observations and participation are scheduled at public health agencies for family planning and Well Child Clinic, for a total of five weeks rotation or 120 hours.

Supervised clinical experience/observation is also scheduled in medical/surgical specialty units at Good Samaritan Hospital. This rotation is for five weeks or 120 hours. These include, but are not limited to, ambulatory surgery unit, emergency room, medical diagnostic unit.

SUMMARY

Theory - 146 hours
Clinical experience - 240 hours
Field trips and special conferences - 34 hours
Total - 420 hours

TERM III

Objectives

Upon completion of Term III, the student has had moderate supervision and will be able to:

. actively participate as a member of the health team in selected clinical settings.

- use the nursing process in providing nursing care for selected patients.
- demonstrate safe, aseptic technique when administering nursing care, treatments, and medications.
- assist in care of patients with complex nursing problems.
- demonstrate limited ability to assist in nursing care, treatments, and medications.
- assist in care of patients with complex nursing problems.
- demonstrate limited ability to assist in nursing care of patients in selected specialty care settings.
- assist in health teaching, prevention, and rehabilitative measures.
- utilize sociological concepts to assist self and others to live productively in today's society.
- accept responsibility for learning opportunities.
- identify and begin plans to attain career goals.

Promotion

Term III is successfully completed when the student has:

- had satisfactory attendance and has completed all assignments.
- satisfactorily completed required subjects and examinations.
- submitted all records of care studies and has actively participated.
- in patient centered conferences with necessary reports and drug cards completed.
- shown satisfactory clinical progress under moderate supervision as evaluated by nursing instructor in each area of experience. It is necessary for the student to develop and

demonstrate some independence in practice after initial clinical rotation through units (e.g., second and third week in any assigned unit).

. evidence motivation and progress as evaluated by guidance sessions and performance.

TERM IV--12 WEEKS

THEORY

I. Medical/Surgical Nursing III--36 hours

This unit of study is divided into the following areas: urinary, sensory, and central nervous system. The study of nursing care of adults will include common symptoms, treatment regimes, and nursing care related to specific diseases and disorders of the systems identified. Treatment and health maintenance will include related pharmacology and diet therapy.

II. Pharmacology IV Integrated--20 hours

Drug classifications used in treatment regimes of the identified diseases/disorders are presented. Students are taught usual modes of administration, usual dose, expected effects, and nursing responsibilities.

III. Medication Administration Pharmacology V--20 hours

This unit of study also covers the theory and underlying principles of medication administration. Laboratory simulation sessions are scheduled and computer assisted instruction is used to reinforce instruction is used to reinforce the theory base. Supervised administration of medication is scheduled in a geriatric setting. The nursing process is used as the basis for all action in the administration of medications.

IV. Nursing Trends and Issues--45 hours

A study of vocational, legal, and religious implications of nursing, preparation for the world of work including job interview skills and job responsibilities, resume writing, and job application process. Professional responsibilities and process of applying for licensure and NCLEX examination are included in this unit. Current health care trends and basic leadership skills are presented.

V. Geriatrics II--24 hours

Geriatric nursing theories and standards are reviewed as they apply to the LPN in the geriatric care setting. Application of basic leadership in geriatrics is discussed. Observation of role of treatment nurse and head nurse are scheduled for the students. Field trips are planned to a variety of agencies/settings where services for elderly are provided.

CLINICAL EXPERIENCE

MEDICAL/SURGICAL NURSING

AND

GERIATRIC NURSING

Supervised clinical experience is scheduled at Good Samaritan Hospital on medical/surgical units for a total of five weeks or 120 hours. For the last rotation of five weeks or 120 hours, students are scheduled in geriatrics units in order to identify multiple role responsibilities in geriatric nursing. Students administer medication under supervision for one (1) clinical week.

SUMMARY

Theory - 145 hours
Clinical experience - 240 hours
Field trips and special conferences - 30 hours
Total - 415 hours

Objectives

Upon completion of Term IV, the student who has had moderate to minimal supervision and is recommended for graduation will have satisfactorily met the program objectives. Graduates will demonstrate the following competencies. They will be able to:

- recognize their legal limitations and will function within the boundaries of these limitations, seeking assistance when appropriate.
- observe patients' needs and/or problems.
- develop a plan of patient care based on identified needs and/or problems.
- implement nursing care under guidelines of safe nursing practice.
- assist patients of all ages in meeting his/her physiological and psycho-social needs, utilizing the family and significant others as a support system.
- function as a member of the health team under the direction of a licensed professional nurse, licensed dentist, or licensed physician.
- assist in the evaluation of the effectiveness of nursing care given and implement appropriate change or modification.
- demonstrate effective relationships with patients, their families, and coworkers.
- utilize principles of effective communication.

recognize their responsibility for continued and professional growth through continuing education and by active participation in professional organizations.

- demonstrate desirable work habits, attitudes, and ideals consistent with code of ethics.

Promotion/Graduation

Term IV is successfully completed when the student has:

- had satisfactory attendance and has completed all assignments satisfactorily, completed required subjects and examinations.
- submitted all records of care studies and has actively participated in patient centered conferences with necessary reports and drug cards completed.
- shown satisfactory clinical progress as evaluated by the nursing instructor. The student is encouraged to progress or mature to the capability of giving nursing care with minimal supervision. The student will have an opportunity to utilize the nursing process and demonstrate skill in patient assessment, planning and implementing care plans for selected patients and participate in evaluation conferences when appropriate.

The student is assisted in application for the Pennsylvania State Licensure Examination. Graduation with presentation of diploma is the symbolic ceremony to mark completion of the program of studies.

## CONCLUSIONS

Federal and state legislation are focusing on health care demands and health care reforms. Mandates are being promulgated to implement

the necessary education and practice of health care providers. Change must be directed at the multiple social forces addressed. These include the nursing shortage, an increase in the elderly population, spiraling health care costs, federal mandates, and the health care provider role changes. Health care needs of the elderly present a unique change to nurses. Nursing education must provide learning experiences which not only develop competencies to care for the elderly but also promote attitudes which foster commitment to geriatric nursing.

Nursing and nursing education are in a unique stage of professional development in which they must assume leadership roles in the health care field, as well as in the education arena. Health care workers, nursing assistants, and licensed practical nurses require job satisfaction and opportunities for lateral, as well as vertical career mobility. There are many excellent and varied types of nursing education programs across Pennsylvania and the country. These programs need to communicate with each other and coordinate efforts to maximize the use of available resources. Providing economical and geographically assessable articulated nursing education programs will contribute to the resolution of both the short term, as well as long term nursing shortage.

## REFERENCES

del Bueno, D. J. (October 1975). The cost of competency. Journal of Nursing Administration, pp. 16-17.

Good, C. V. (1973). Dictionary of education. New York: McGraw-Hill Book Company.

Harper, M. S. (1986). Mental health curricula content on the preparation of technical and vocational health care providers in long term care facilities. In B. Richards (Ed.), Proceedings of the National Health Occupations Education Curriculum Conference (pp. 31-56). Des Moines, Iowa. (ERIC Document Reproduction Service No. ED 278-787).

Johnson, W. L. (1975). Advanced placement in schools of nursing: A statistical description. In C. Lenburg (Ed.), Open learning and career mobility in nursing, (pp. 53-62), St. Louis: C. V. Mosby.

Langley, I. & Raymor, N. (1986). Postsecondary allied health programs. In B. Richards (Ed.), Proceedings of National Health Occupations Education Curriculum Conference (pp. 129-141). Des Moines, Iowa. (ERIC Document Reproduction Service No. ED 278-787).

Lenburg, C. (1975). Open learning and career mobility in nursing. St. Louis: C. V. Mosby.

Martin, W. J. & Thompson, J. F. (June 18, 1985). New directions in secondary-postsecondary articulation in vocational education. Report presented at Pennsylvania Vocational Education Convention. Champion, Pennsylvania.

Parsons, M. H. (1980). Cooperation in vocational education programs: Articulation is for real. Symposium conducted at Kellogg Institute on Staff Development. Austin, Texas.

Stevens, B. J. (1981). Program articulation: What it is and what it is not. Nursing Outlook, 29 (12), 700-706.

Thomas, K. J. & Thomas, H. K. (1988). Articulation of credits: Continuing education for career ladder upward mobility in nursing. The Journal of Continuing Education in Nursing, 19 (3), 103-108.

Warmbrod, C. P. & Faddis, C. R. (1987). Patterns of articulation. Vocational Education Journal.